AMERICAN BEE JOURNAL

The Oldest Bee Journal in the English Language

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AMERICAN BEE JOURNAL

Vol. LXXVII—No. 3 Hamilton, Illinois, March, 1937 Monthly, $1.00 a Year

Comment on the Resistance Experiment

By Charles Mraz,

Vermont.

I HOPE to be excused for being so bold as to comment on Dr. Park's article in the January issue of "American Bee Journal." It is certainly authoritative and cannot be questioned as one might the words of a private beekeeper. I am especially interested in this article because I have experimented with resistance for five years on almost two hundred colonies. My method and results differ somewhat, in that my experiments were a case of necessity. With Dr. Park and associates, they were deliberate.

In my first experiment, a newly located yard (yard No. 1) of about thirty colonies, in the fall of 1931, robbed out a yard of sixty colonies that had practically died out from American foulbrood. Most of the bees in my yard were dark Italian hybrids and there were two colonies of goldens. In the spring of 1932 foulbrood began to appear. With the hybrids it developed quite slowly, two colonies never showing it. With the goldens it completely killed the brood in a few weeks and they were burned up as hopeless cases. In the remaining colonies, the queens were killed. Into six colonies Caucasian queens of imported stock and two dark Italian queens of imported stock were introduced. The rest of the colonies were requeened with cells grafted from these queens.

The bees were watched rather closely at this time and only seldom did they gnaw the comb as described by Dr. Park. They simply chewed out the dead larvae after they had dried down a bit. This is perhaps because the larvae were softer than those in the comb Dr. Park used where the larvae were older and dried out more. Another important feature is that my colonies were queenless for a time, giving the bees a better chance to clean up. In queenright colonies the queen is apt to lay in cells containing scales, slowing up or preventing the clean-up process. The fact that some of Dr. Park's colonies cleaned up the following year may be due to the broodless period over winter, giving the bees a chance to clean up before the queen started laying.

Another thing that I did, which may or may not be of importance, was inoculating the queen cells with American foulbrood larvae when grafting. Queens usually hatched from cells so treated, but I have no idea what influence it would have on their resistance. It might be worth while to look into this farther. Since 1932 this yard has remained clean in spite of considerable American foulbrood around it, as will be seen later.

I had another yard at this time (yard No. 2) less than a mile north of yard No. 1. These colonies were requeened with the same stock at about the same time though they did not show any signs of disease with perhaps one possible exception which soon disappeared. There was a back lot beekeeper with three colonies within a stone's throw of this yard and on inspection the following year two of his colonies had American foulbrood. Yard No. 2, however, has remained clean, a good example of foulbrood prevented by resistance.

In all my experiments, infection has come from natural sources, that is, robbed American foulbrood honey. In Dr. Park's experiment inoculation was made by inserting combs containing American foulbrood spores into the brood nest. There is a tremendous difference between these two forms of inoculation. An American foulbrood comb is far more potent than is ever possible with American foulbrood honey. I saw an excellent example of this two years ago. The manager of a large apple orchard had about fifty colonies of bees, forty in standard Langstroth hives and about ten colonies in double shallow super hives. The bees were of the dark hybrid type from many different sources. On inspection the forty colonies of standard hives were all bad cases of American foulbrood. The ten colonies in shallow super hives were 100 per cent clean, in spite of all the dead and dying colonies around them. They were together for several years and had ample opportunity to get all the disease tainted honey they wanted.

Considerable questioning brought out the following facts. Wherever a colony died out from foulbrood, the manager used the combs to divide the remaining colonies for increase, resulting in time with 100 per cent infection. With the shallow super colonies, however, he was stuck. The frames being shallower, he could not divide them with the standard combs,

so he just let them alone. Though the bees robbed plenty of American foulbrood honey, it apparently had no effect on their larvae. Had they been given American foulbrood combs, they, too, would have had it.

As far as I have observed, dark Italians, especially of imported stock, are as good as Caucasians, Carniolans or any other race in resistance to American foulbrood. The difference is in the strain. Even Caucasians vary in resistance, as do the other races. The greatest influence to increase susceptibility seems to be inbreeding, and inversely resistance seems to increase with crossbreeding. Golden Italians, of all bees, are the most intensely inbred, and as my experiments have conclusively shown, are extremely susceptible to disease. They are helpless in face of it. It is a fact that we cannot hide or overlook. My intention is not to knock breeders of these queens. They simply are giving beekeepers what they want. They would be glad to supply dark Italians or any other race or breed that beekeepers might want that would prove satisfactory to them. It is just good business.

Last year I saw a good example of the susceptibility of goldens. I bought a yard of sixty colonies (yard No. 3) in the spring and moved them about a mile south of yard No. 1. These bees were a mixture of goldens, dark Italians, hybrids, and a Caucasian or two. Later in the spring foulbrood began to appear. It was surprising to see how American foulbrood followed the yellow strain. By looking at the color of the bees it was a simple matter to tell which colonies were sure to become diseased. In all, about thirty-five colonies got it, the dark strains, as a rule, remaining clean. In the diseased colonies the queens were killed soon as evidence of disease was found, and cells from resistant queens were grafted into these colonies. By fall all but four colonies cleaned up. In all cases these four colonies raised queens of their own from cells that were missed rather than from cells given them. This yard clearly showed that there is still American foulbrood in the vicinity of yard No. 1 and yard No. 2, especially in bee trees, as much of the land here is heavily wooded.

My object in describing these experiments is not to induce anyone to try to clean up any American foulbrood but to try to show the value and importance of resistance as a preventative measure. Developing a "super-resistant" bee by inserting American foulbrood combs is all right as an experiment, but from a practical standpoint, I believe, unnecessary. My bees in the No. 1 and No. 2 yards are resistant to all the American foulbrood honey they might get hold of, but if I should insert American foulbrood combs in them, I would have a bonfire on my hands. I know, because I have tried it. There is no use kicking a lion just to see him bite. As long as they remain clean under natural and practical conditions, why go any further?

The subject of normal resistance may be summed up in one sentence. Prevent inbreeding and increase crossbreeding, not necessarily between different races but between different hardy strains of the same race. Dr. Park seems to indicate that he will inbreed his present stock of resistant bees, thereby developing a highly resistant bee. But will he? I have tried inbreeding my resistant stock to some extent, but it has always resulted in degeneration somewhere. Nature abhors inbreeding and always tries to prevent it. If we insist on doing it, we must pay the penalty.

Though many may not believe all I have said in this article, it certainly will not do any harm. It must be remembered I always have and always will advocate burning all colonies that actually have disease. It is the best and cheapest cure in the end. However, by increasing resistance of clean colonies to prevent American foulbrood, there will never be any need of any cure.

—*ABJ*—

Resistance Not a Racial Character

By Frank C. Pellett,

Iowa.

OUR readers will be interested in the account of how Mraz has kept disease in check in his own apiaries through the use of resistant stock. It is interesting to note that he still advocates burning all colonies which become diseased while depending upon resistant stock to avoid having them take disease. This is exactly what we advocate.

The experiments at Pellett Gardens have been in the nature of laboratory tests in order to ascertain just what happens when bees are exposed to American foulbrood. Certainly no practical person would purposely put the bees on diseased combs unless he expected to destroy them later. The fact that a few colonies have been sufficiently resistant to clean up such combs is very encouraging to one who hopes to be able to keep bees where they are constantly exposed to disease.

Mraz has not observed the tearing down of the combs as Park describes in telling of our experiment. In the normal exposure through robbing other colonies the disease would be of slow development and thus give the bees time to remove the sick larvae before scales are formed. The test material was composed of combs where colonies had died or were in the last stages of disease. This would never happen naturally except when swarms were hived on such combs.

Mraz mentions the advantage of a broodless period. It is very evident that such is necessary in any case where disease has much of a start if the colony is to recover completely.

He makes an interesting suggestion when he rears queens from larvae exposed to disease. We have tried nothing of that kind but it is not a new idea. A. V. Small made such a suggestion several years ago and E. M. Cole has done experimenting along that line.

Probably the most important part of the article, as I see it, is his statement that Italians are as likely to prove resistant as the gray bees. As Park has pointed out, we found resistant stock in all three of the races commonly kept and we also found susceptible stock in all three races. Very evidently it is not a racial character but an individual one.

The objectives of the cooperative experiments were: first, to ascertain experimentally whether some bees are really resistant to American foulbrood and, second, whether this character is inherited. We feel that both have been definitely proved. It remains to put this information to practical use by breeding stock which will stand up under ordinary conditions without taking the disease even though frequently exposed to it.

Mraz is certainly right when he advises to burn colonies which become diseased. If one has resistant stock there is little chance that foulbrood will get much of a start in the first place. Once resistant stock becomes generally distributed we are likely to hear much less about disease. Mraz has proved its value in his own apiaries and as an apiary inspector is entitled to much credit for calling attention to the facts at a time when little credit was given to such a possibility.

The Wax Method of Plucking Poultry

By A. E. Tepper,

University of New Hampshire,

Durham, New Hampshire.

The finished bird after removal of wax coat.

ON September 10, 1929, there was granted a U. S. Patent No. 1,727,674 covering the use of an adhesive or wax mixture for the removal of feathers from poultry. For several years it has been employed by the large packing houses which claim that it has very definite advantages over the commonly used method of semi or slack scald. In the first place the packing houses claim that it produces a better finished carcass, one improved in appearance. It eliminates the necessity for singeing and it removes the scales from the surface of the skin of birds, leaving a very clean and fresh appearing carcass. The packing houses have also stated that since the wax removes the hair, scale and pin feathers, there is a material saving in the finishing process.

These advantages as claimed have been found to be true, and the method is being adopted by many concerns. The use of this procedure is not limited to the large packing houses. The poultry man or woman having a regular outlet for dressed poultry should investigate its possibilities from the standpoint of producing a better grade product and its labor-saving features. At the present time it is generally recommended for those who are dressing off fifty or more birds at a time. It is questionable whether the method would be advisable for the poultryman dressing less than this number.

Scalded bird, rough picked and dried, in condition for wax application. (Picture at right.)

Bird with wax coat, before dipping in cold water to harden wax. (Picture below.)

In brief the method of wax picking may be divided into seven operations. The bird is hung on shackles and is bled and debrained. After the bird is well bled, it is immersed in hot water at a temperature of 128 degrees Fahrenheit for a period of thirty seconds. This hot-water dip is known as semi-scalding.

Several types of semi-scald machines on the market are suitable for use by the poultryman. Such equipment will vary in cost from $40 upward. A homemade outfit consisting of a large tub of water heated by a two-burner oil stove, can be employed to good advantage.

The shortest length of time in the water to produce an easy pick should be the rule. Thirty seconds at 128 degrees is about right. The bird is then suspended on the shackles again and rough picked. The "roughing" consists of the removal of the large wing and tail feathers and the greater amount of thick body feathers.

The bird is then allowed to cool to about 70 degrees and feathers dried. If electricity is available an electric fan may be employed to advantage. I find that the abdominal section of the bird maintains the heat longer than the other sections of the body and if temperature readings are made they should be taken from this point.

In a recent publication from the Dominion Department of Agriculture,

Ottawa, Canada, a homemade wax-plucking outfit is described. It consists of a round wash tub large enough to hold a good sized aluminum kettle. The molten wax, preheated on a small stove, is placed in the kettle and warm water in the tub helps to keep the wax warm and maintain the proper temperature. Another smaller pan of molten wax is kept on the stove ready for occasional additions to keep up the temperature of the larger kettle of wax. A dairy thermometer, a pail of cold water and a strainer for reclaiming the used wax are the other necessities.

After the bird is cooled and well dried it is immersed in the wax solution which is held at a temperature of approximately 128 degrees Fahrenheit, withdrawn, held momentarily to allow excess wax to drain off, and then re-dipped. Three coats of wax are sufficient. Immediately after the wax dip the bird is immersed in cold water for approximately two minutes.

When the wax is properly set, the bird is again suspended on the shackles and the wax peeled off in sheets. Although the wax will not remove every one of the pin feathers, it does not leave very many. The few that are left are easily removed in short order. Any finishing procedure after the removal of wax is almost entirely eliminated.

The wax solution which has been most generally used is made up of 75 per cent paraffin and 25 per cent rosin. Another mixture which is being used with success is made up of 68 per cent paraffin, 30 per cent rosin and 2 per cent lard. Some mixtures include the use of approximately 5 per cent beeswax. The lard is added to make the wax more pliable and easier to peel. In mixing the wax solution, the ingredients should be melted separately and then mixed thoroughly together. Keep the wax in a large container, allowing to solidify when not in use. It may be remelted and used over and over again with the provision of course that additional ingredients are added as needed.

The wax peelings may be melted and the feathers strained out through a one-fourth inch mesh sieve, allowing such wax to be used again.

Although the wax method was primarily adopted for use on very "pinny" broilers or fowl, it is not limited to use on chickens. It has been used with good results on turkeys and ducks. We tried the use of wax on a duck which had previously been semi-scalded and roughed and the result was surprising. The problem of finishing ducks in a neat appearance with little effort was solved. The fluff and down was removed thoroughly leaving a very clean and attractive carcass.

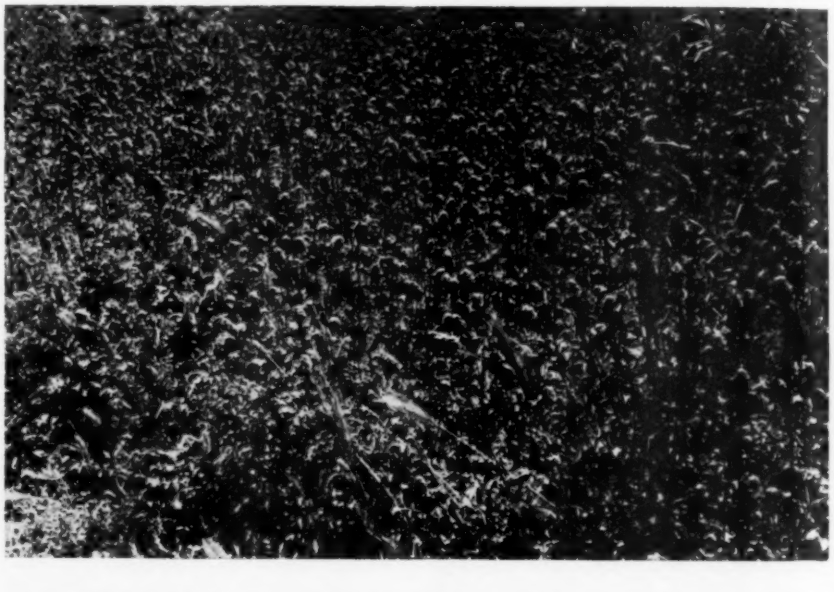
Burnet As a Pollen Plant

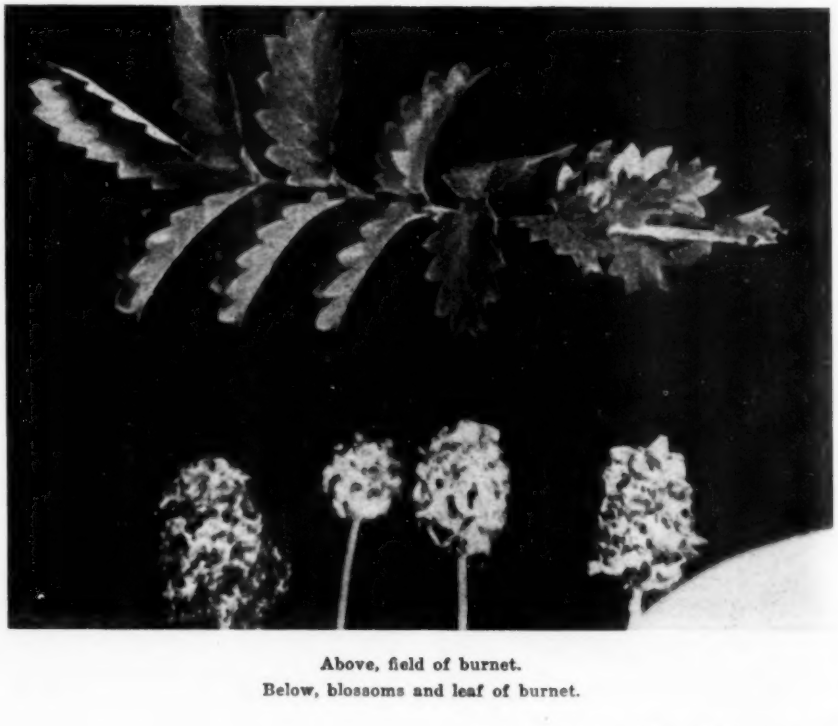
By J. E. Eckert,

University of California.

WE have received recently some inquiries in regard to burnet as a pollen plant and the possibilities of its use as a forage plant. Burnet is known by the botanical name of **Sanguisorba minor** and is a member of the family Rosaceae. It has unequally pinnate leaves with small, perfect, polygamous or dioecious flowers crowded in a dense globose head about ⅝ inches in diameter at the end of a naked stem that may extend for 18 or 24 inches in height. The calyx tube is turbinate, constricted at the throat, and has four spreading lobes deciduous. There are no petals.

Burnet is little known in this country although it has been grown experimentally for a number of years. It is an introduced species, being





Above, field of burnet.
Below, blossoms and leaf of burnet.

cultivated to a considerable extent in England and France. It is a deep rooted perennial, the roots sometimes penetrating deep, loamy soil to a depth of 20 feet. It withstands heavy pasturing in favorable locations and continues to grow during the winter period. For this reason it is commonly used in pasture mixtures in England. Once well established, it will withstand protracted periods of drought and should be well adapted to dry foot-hill situations in the coastal ranges of California.

It is quite hardy and will withstand considerable cold. On good land the plants will grow to a height of two feet and under favorable moisture conditions will yield a ton or more of green feed per acre. At the California Agricultural Experiment Station it has yielded from 600 to 700 pounds of seed per acre. Due to the fact that it can be cut but once a year it cannot compete with alfalfa as a hay crop. It has a rapid spring growth and blooms in late spring. During its blooming period at Davis, California, the bees worked the plants in great numbers during the early morning and late afternoon hours, gathering only pollen therefrom. After it was cut for hay, it grows slowly during the heat of the summer unless irrigated, but grows more rapidly again during the moist portions of fall, winter, and spring. It will remain green even under drought conditions when other plants turn brown.

It has not been used in the United States on a large enough scale to fully indicate its potentialities. It deserves the consideration of beekeepers in drought areas where there is a shortage of pollen and even in the irrigated areas where pollen plants are scarce after the close of fruit bloom. It may not be of much use to the beekeeper when heavily pastured but when any plant is used quite generally for forage purposes, sufficient plants escape cultivation to be of considerable importance to beekeepers. Its deep rooting habit of growth and drought resisting qualities should recommend it highly in soil conservation projects.

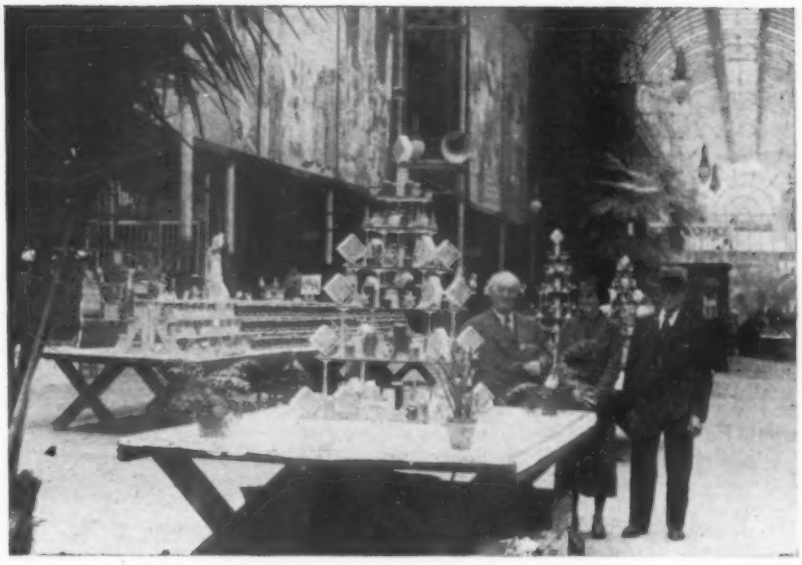
ABJ

Honey Cocoanut Dainties

2 cups honey
1½ cups cocoanut
1-1/3 tablespoons gelatin
1 teaspoon vanilla

Soak the gelatin in ⅔ cup of cold water about five minutes. To honey add ½ cup cold water and boil to 240° F. Stir softened gelatin through syrup quickly and turn into a pan to cool, but do not scrape pan. When partially cool, beat until creamy and stiff, stir in cocoanut, shape into sizes as desired. Put in buttered dish and set in ice box before using.

Helen Davidson,
California.



Above, honey trophy at National Honey Show, Crystal Palace. At right is Mr. C. T. Overton, one of the oldest experts in Great Britain. At left, Dr. J. Anderson, editor of the Scottish Beekeeper.

Below, front row, left to right: E. L. Hague, director of the Apis Club; Rev. D. L. Bryce, chairman of National Show Committee; Rt. Hon. D. Lloyd George, P.C., M.P., O.M.; W. E. Hamlin, general manager; Miss A. Parry, beekeeping expert to Lloyd George.

British National Honey Show Presents David Lloyd George As a Beekeeper

A MUCH larger number of beekeepers than usual assembled for the opening of the National Honey Show at the Crystal Palace on September 30 to welcome the Rt. Hon. David Lloyd George, P.C., M.P., O.M., and they were richly rewarded by a speech in praise of honey that will remain an outstanding memory after the show itself has disappeared into the dim shades of the past.

Sir Henry Buckland, general manager of the Crystal Palace, presided; and in his opening remarks he referred to the part which has been played by the Palace in giving encouragement to the beekeeping industry, an effort which, he feels, has resulted in a steady increase, year by year, in the prestige enjoyed throughout the country by the National Honey Show. This year they counted themselves fortunate in having to open the show so eminent a beekeeper as Mr. Lloyd George.

Mr. Lloyd George said that he had

come to the show in what to many people would doubtless seem an unusual capacity, speaking to beekeepers as a fellow producer and purveyor of honey. He said he realized that he was in the presence of beekeepers far more expert than himself, and that he did not intend to speak to them as an expert, though he was qualifying in a modest way as an exhibitor. Competent judges, he said, had been good enough to praise his honey, "the description of a competent judge being, of course, a person who tells you what you want to hear."

The speaker reviewed the honey season, which was, he said, poor in both the national and international worlds. Conditions were similar, for in both there was very little honey, much restlessness, and a marked tendency to rob other hives.

Mr. Lloyd George recalled how, in his boyhood, the farmers and cottagers in his native land had a skep or two of bees in the back garden and how in the autumn they were sulphured and their honey taken from them: first massacred and then despoiled. The speaker remarked the change that has taken place since then. Our knowledge of beekeeping has made enormous strides, and these advances we owe to those who have taken the trouble to investigate the habits of these industrious insects which bring sweetness into the lives of untold generations of people. He commented that the value of such scientific study has been incalculable, and that in particular are we in this country indebted to Sir John Russell and his able staff of assistants for the work which has been carried out at Rothamsted in recent years — work which is laying the foundations of future development and of increased prosperity in the industry.

Mr. Lloyd George said that his beekeeping sometimes appears to him as essentially a labor problem. During the past few years he has found himself becoming one of the greatest employers of laborers in the country. His is a factory, and a factory in a garden, containing seven or eight million of the best workers in the nation. Throughout the whole of the summer these workers were full of zeal and activity, eager to go out and gather honey for him whenever the sun was shining.

He spoke of his bees as laborers and said that for bees as for human beings the best housing conditions available must be provided. He is against slums for bees as well as for human beings, and said that if one's bees are well looked after and properly housed, they will bring in better results to their owners.

Mr. Lloyd George likened bees further to human beings. He went on to say that there are periods when even the best cared-for bees suffer from enforced unemployment. We had such periods this summer and, as for human beings, when they occurred it was necessary to provide a "dole." He thinks that beekeepers should be generous with their dole this autumn and not apply too much of a means test. Generous provision of winter stores is a sound investment, and he could not too strongly recommend all beekeepers to make sure that their bees had enough to live on this winter.

The speaker said that labor in the beehive differs from the labor in the human factory in that it is all female. In the case of bees, Kingsley's dictum that men must work and women must weep is reversed. In the hive it is the women who work and the men who weep, particularly in the autumn; and the women not only work but, like the Amazons, take charge of the fighting too, and very good fighters they are, as Mr. Lloyd George says he has had painful occasion to know to his cost.

The fame of bees, however, rests on the sweetness of their product, rather than on an Amazonian qualities which they possess, and we should proclaim the virtues of honey to all the world. Honey was so well known to our forefathers that it has passed into our language and is in common use as the synonym for sweetness. "Let us remember," said Mr. Lloyd George, "the conditions under which honey is produced. Watch the bees flocking out of the hives, as they did, for example, when the sunny weather came in August, and it becomes clear that honey is gathered from flowers only when they are kissed by the health giving rays of the sun. Honey is an appetizing, nourishing, warming, and healing food. It is as good for children as for old people, for it is the most easily digested of any food, in fact the older you are or the younger you are the better it suits you and the more necessary it is for you.

"The question of vitamins may not have been settled by scientists, but there is no question about the value of honey. It is the natural sweet. It contains the vitality that comes from the kindling and energizing rays of the sun, and beekeepers are rendering a national service by contributing their honey to the food resources of the country.

"British honey can hold its own with any, and is improving year by year. Our country is essentially fitted to take up and extend the production of honey, for Great Britain has a greater, and more abundant variety of honey producing flowers than any other country in the world. The scope for increase is well nigh unlimited. It is the more important that we should increase our production of honey, as efforts are being made to take away its good name by selling under the name of honey cheap and artificially prepared sugars. This must be stopped.

"There should be a big collective effort on the part of beekeepers to increase the consumption of honey by advertising its food value, particularly for people with weak digestions. Honey is a pick-me-up that keeps you on your feet afterwards.

"Beekeepers form a fraternity of service. It is to be hoped that both the spirit of fraternity amongst beekeepers and their service to the commonwealth will increase."

At the conclusion of his speech Mr. Lloyd George distributed the cups and prizes. The fact that many of these were won by exhibitors living almost within the shadow of the Crystal Palace is eloquent witness that the beekeeper with just a few colonies in his garden, can produce honey of equal quality with the beekeeper who counts his colonies in hundreds and who has them on the wide open downs or on the heather moors.

[Editor's Note: We are indebted to Messrs. Burtt and Son, Gloucester, for this report. This is the leading honey show in England and there are usually a thousand to fifteen hundred entries. The famous Crystal Palace, where the National Honey Show was held, was completely destroyed by fire November 30.]

———ABJ———

News from Northern Wisconsin

Here we have what is left after the timber crop has been removed, not equal to the southern part of the state but a promising territory. My bees did not do so well as I expected. One of my neighbors with ten colonies averaged about one hundred fifty pounds.

This part of the state was treated to a three years' drought. Even now prospects are not normal for the coming honey crop. However, the locality is fast developing. We have an abundance of wild flowers including sumac and basswood. Although it is a potato country, farmers are growing more legumes every season. Dairying is getting a good start and a fair percentage of farmers have silos. Sweet clover is coming into more general use.

Our climate is not so severe, but we must pack colonies. Mine are in a shed with about eight inches on all sides, top and bottom, and have about sixty pounds of honey in double-story brood chamber with young bees and plenty of them.

Properly handled, bees can be made to show a good profit. I plan on more packages in the spring, as many as I can care for together with my other farm work.

G. W. Bartlett,
Wisconsin.

Honey Getting

SECTION II
Part II

This house has a central high roof with lighting and ventilation between this roof and the lower roof on each side, as well as windows in each side wing. Secondary floors are built at each end of the building, under the high roof, for storing light materials. Honey is extracted at one side of the building and run through long pipes to storage tanks on other side.

Honey House and Workshop

By E. L. Sechrist,

Tahiti.

Editorial.

Beginning February, page 66, the second part of the beekeeping instruction lessons, by Sechrist, made an auspicious debut, to judge by the letters coming to the office. We now enter the honey house and workshop. Last month yard equipment, labor, and investments were considered.

Honey House and Workshop.

AS the queen bee is the heart of the colony, so the honey house is the heart of the apiary. Into it, through it, and out of it, flow all the currents of beekeeping activity throughout the season. The honey house, therefore, must be well planned if the apiary business is to be in a healthy condition—if beekeeping activities are to be conducted with despatch and profit.

All too often, although sometimes necessary because of financial stringency, the honey house is some small building not suited to the work which must be done in it. As soon as he can afford to do so, it is profitable for the beekeeper to put up a building which has been planned primarily as a honey house. It is seldom wise to keep on adding one shed after another to the original structure, leaving it still unadapted to the needs of the business. Soon the amount of money invested in the makeshift plant becomes considerable, and the beekeeper hesitates at pulling it down and putting up a better one. Experience suggests that it is better to continue to use inadequate accommodations for a year or two longer and then to construct a building adapted to the business and with provision for future development.

On the other hand, an inexperienced beekeeper may erect a honey house well suited to a large business, only to find out later that the nectar sources do not come up to his expectations; or that conditions in his territory change so frequently that the central plant is so far from the scene of his operations as to cause him much extra expense for transportation and travel.

It is necessary, therefore, that one who plans to build a honey house should consider carefully its location and its fitness for the work to be done in it.

Although a building for use in handling extracted honey will be different from one used exclusively for comb honey, yet provision should usually be made, in every honey house for handling some comb hon-

Honey house with depressed driveway through middle.

This honey house has storage space under the gambrel roof and a wing at a lower level.

ey. In most locations there is a period during the honeyflow when some fine comb honey can be produced at a greater profit than extracted honey gives. A few beekeepers follow the practice of having about a hundred comb honey supers ready to put on selected hives at this time, in order to get that fine comb honey, then taking them off and storing them away until the next season. Provision should be made for this.

Three things are of primary importance in building devoted to handling honey. First, it should be so arranged that no bees, other than those which the operator himself may bring in, can enter it. Second, it should be so constructed that any bees brought into the honey house are not permitted to enter the work rooms but are kept in the first, or storage room whence they may soon be transferred to the outside of the building. Third, the building should be so planned that honey, once brought into the building, goes on in a continuous and direct line of travel to the storage tanks and shipping rooms. A surprising amount of time and labor is wasted in most honey houses by poor arrangement of work rooms and apparatus and by poor floors.

An apiary business is not to be thought of as single manufacturing unit, but rather as a series of manufacturing units, a series of honey machines. First there are the separate colonies of bees; then their combination into apiaries; and finally, the honey house and its varied machinery. All these must be, for efficiency, so arranged and managed that the man-labor required is at a minimum. Economy is secured by having effective units ready for work when the crop is to be taken. Better fifty good colonies, fifty good honey-getting machines, than twice as many ineffective ones; and better a well arranged honey house with simple machinery than the finest new equipment badly arranged and ineffectively used. Every unnecessary step the beekeeper takes increases the cost of production and should be eliminated.

At the entrance end of the building there should be an office where the manager may have his books and papers, and small things under lock and key.

A work shop, with carpenter's bench and tools, where hives may be put up and repaired is also necessary and is best located in a separate building, but if a room in the honey house is used for a shop, it should be well isolated so that dust from the shop may be kept out of the honey rooms.

The wax melting apparatus is also best located in a separate building from that used for the storage of honey, both because of the character of the work and because, unless the work is done with exceeding care, an occasional fire originates in the wax room.

These, then, are the chief requirements for a good honey house. It should be large enough, but compact and well planned. It should be bee tight, well ventilated, and capable of being kept clean. Its floors should be as nearly perfect as floors can be made and should be strong enough to carry heavy loads and be free from vibration.

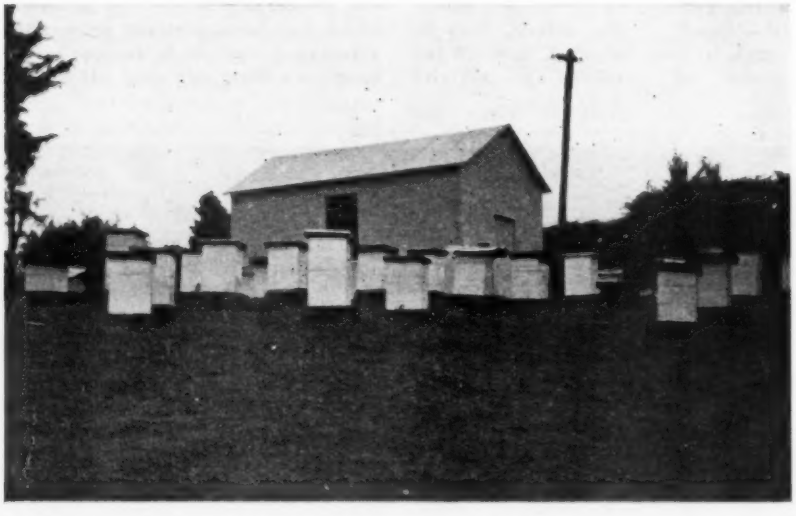
Following a consideration of various types of honey houses and their equipment, section three of **Honey Getting** will be devoted to plans for several good honey houses and to construction and use of equipment used in honey houses.

TYPES OF HONEY HOUSES.

A House of One Floor.

The one-story honey house has several advantages. Perhaps the best arrangement is to have a large house with a driveway through it from end to end. This driveway may be depressed, so that one may drive in on the ground level, and then on a downward slope until the truck body is level with the main floor. A similar slope leads upward to the exit at the other end of the building. The floor at one side of the driveway is used for extracting and storing honey, the other for storing empty combs and preparing and storing all other beekeeping equipment and supplies. With a depressed driveway, extracting is done on the main floor level and a honey pump is used to lift the honey into the storage tanks. If a depressed driveway is not used, a strong platform is made on one side of the driveway at the height of the truck body, or a little higher, and on this platform the extracting is done. A gravity system of handling honey may then be used.

The roof of the central part of the house may well be higher than the side wings in which are all the work



House of Donald McDuff, Forestvale, Kelso, New Zealand. (From S. P. Hodgson, B. C.) Outyard house; good entry but poor lighting.

House of N. Pankiu, Dufrost, Manitoba. Bee tight building now finished at top of the truck runway, with doors that may be opened to let the truck in, then closed during unloading.

rooms. Then the main room can be lighted by high windows placed in the vertical walls above the work rooms, as in many factory buildings. This kind of honey house permits of indefinite expansion as one may add to the length of the central and wing rooms as needed.

In such a building, there may be, on one side, a room for storage of filled combs, the extracting room, the tank room, a room for the storage of honey in cases, and a room for comb honey work, while on the other side may be an office, a carpenter shop, a wax room, a boiler room, a tight room for storing of empty combs and sulphuring for wax moth, and space for storage of all supplies. Everything may be under one roof, easily accessible and readily rearranged to accommodate any change in the business.

It is quite feasible, in a one-story house, to use a small hoist with overhead track for lifting stacks of filled supers off an incoming truck and conveying them to an extracting platform placed at such a height that the honey may flow by gravity from the extractor into shallow settling tanks.

It may be definitely stated that, wherever it is possible to build a honey house on a natural slope or where a moderately elevated or depressed driveway can be constructed, either within or outside of the honey house, this should be done, and the gravity system used, as the least expensive and simplest method, avoiding many troubles.

A Two-Story Honey House.

A two-story house has its good points also, and must be considered.

The handling of honey in a two-story house, by the gravity system, is very simple. The load of full supers from an apiary may be delivered to the upper floor, the honey extracted there, permitted to flow by gravity into the clarifying and storage room on the lower floor, and then be loaded out of storage to the delivery truck on that level. With such an arrangement there is no direct lifting of heavy supers or cases of honey from beginning to end of the operations in the honey house, all honey being moved on trucks of various kinds except where it flows by gravity.

House built on a side hill, second story entrance at rear. Work shop in wing under shed roof, with truck entrance and garage below it. The two windows above the wide doors light this room.

If built on a slope, most of the rooms should be on the high level, except the tank and storage rooms and the wax melting room, which should be on the lower floor. A driveway should serve each floor, the floor level being at the height of the truck body for ease in loading and unloading. The plan should permit the truck to enter the building so that robber bees may be shut out and the honey unloaded or wet supers loaded behind closed doors. This truck entrance also serves as the garage.

If the ground is level, with no natural slope to the second story, driveways of earth, masonry, or timber, are sometimes built to the desired height, or a sunken driveway may be made to serve the lower floor. It is perhaps not amiss to suggest that adequate drainage must be provided for a sunken driveway unless porous soil gives sufficient drainage.

Most honey houses are too small. Two floors, each 25 by 50 feet, or the equivalent, is not too much, and will provide some room for expansion. With not more than 500 colonies, one floor of that size will be sufficient.

Honey House Floors and Walls.

All kinds of floors are in use in honey houses and each has its adherents. Wood floors have the advantage of being easy to stand on. A hard maple floor is perhaps the best kind of wood floor and the easiest to keep clean. If a wood floor is used where another floor is situated below it, the joints should be laid in heavy paint or asphalt so there can be no leakage. Then the floor should be well oiled or painted.

Cement floors are good, but are difficult to free from wax and propolis unless particular care is given to making the surface of the floor very hard and smooth by careful troweling and the use of a rich mixture or by the use of some of the waterproof cement mixtures. Cement floors should also be painted with special paint for cement.

Some have used floors covered with tin or galvanized iron. This may be an advantage in comb storage rooms and in the extracting room where considerable honey is likely to get on the floor but iron floors have a tendency to buckle and are not then satisfactory. This buckling has been overcome, to some extent, by using strips of iron not more than 18 inches wide, with ¾ inch turned down along the two long edges of the strips. These

(Please turn to page 134)

How much honey, trucked from warehouses like this, is clean and how much dirty? It is the most poorly prepared honey that decides the price and the equipment for honey handling that the packer has to use.

The Importance of Clean Honey

By T. W. Cookinham,
Bryant & Cookinham,
California.

[Bryant & Cookinham, large buyers and shippers of honey on the Pacific coast, as well as similar firms over the country, are aware of the necessity of impressing upon beekeepers the importance of **keeping honey clean.** In this letter to "American Bee Journal" the reader should understand that the honey which eventually reaches the bakery is often sold by such firms as Bryant & Cookinham through other agencies, and it is from such an agency that the letter, quoted by Mr. Cookinham, was received.]

MANY beekeepers do not realize the difficulties to be experienced with honey that is not entirely clean. All concerns do not liquefy the honey but take it directly from the cans and use it in their plants. Some beekeepers are more or less careless in their methods of canning their honey and this results not only in unclean honey but in honey that contains many bees. While some beekeepers laughingly state, "That proves that it is genuine honey," we want to bring this matter to their attention in such a way that a concerted effort will be made to try to put out a cleaner product than has been available heretofore.

This complaint is not against the honey from any particular locality. It seems to be more or less general and we find it in all districts from the Rocky Mountain states to the Pacific Coast states from where we buy and ship honey.

One of our largest concerns who buy several carloads of honey a year against contract to be shipped to various bakeries is most emphatic in his complaint during 1936 regarding finding bees in the honey. These bakeries do not liquefy the honey. They cut open the honey can, scoop out the honey, weigh it, put it in with their mixtures for bread, and it has been difficult for them to locate the bees in it. We quote from letter as follows:

Honey in honey house tanks like these often varies in color and too often is not uniformly clean. It is the beekeeper's duty to deliver the cleanest and most uniform product possible to the buyer.

"Referring again to the matter of the remaining honey to be shipped against contracts, the writer must tell you that he has a very strenuous and vigorous complaint to make on the recent delivery of honey [to an important baking establishment]. It seems that you have been shipping honey that has not been properly handled before being placed in the cans, as every so often they come across a can in which there is quite a number of bees.

"Several instances have occurred where their workmen who make up the bread did not catch these bees in the honey and have had to throw away the entire batch of bread. This complaint has not come only from their main plant but from several of their branches, which mention the same difficulty and now they have asked their buyer whether **he can buy honey from some other source OR FIND SOME OTHER PRODUCT.**

"I cannot understand how this thing could have happened but apparently the producers of this honey do not seem to care about satisfied customers. The writer is not familiar with the way honey is handled but surely it could be strained in some manner so this does not occur, or if you have honey with bees in it, it should not be sold as first-class honey but should be sold for some other purpose. The buyer told me that this is positively the last straw and if he

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GUEST EDITORIAL

How Owens-Illinois Has Helped Honey Producers

By Herbert L. Enzelberger,

Sales Manager, Food Container Division,

Owens-Illinois Glass Co.,

Toledo, Ohio.

Editorial.

Much has been done by American Honey Institute to gain the friendship of the larger food production and distribution organizations, so that the total strength behind the publicity for honey has grown to huge proportions as a result of the cooperative return that this continued friendship brings.

One of the great glass companies tells here why it works for the beekeeper. The story could be repeated by many other large business organizations so that the total worth to the beekeeper in paid advertising space for honey would soar to hundreds of thousands of dollars. All it costs is good will.

This picture was circulated as Mr. Enzelberger says, to five and a half million readers. Is that publicity for honey? Buy it and you'll know.

MOST everyone enjoys doing favors for persons who appreciate them. This, in a few words, expresses our feelings toward the members of the American Honey Institute.

The way in which we discovered how active and appreciative the members of the American Honey Institute are requires a little explanation. Early in 1936 the Owens-Illinois Glass Company approved a national publicity campaign, the purpose of which was to stimulate an interest in coffee vacuum packed in glass. During the course of that campaign, a story featuring the use of honey to sweeten coffee was released to the food page editors of a nation-wide list of metropolitan newspapers.

The photograph shows a young lady pouring a jar of honey into a pitcher to place on a coffee tray. Later this same article and illustration were prepared in mat form and released to a number of small daily and weekly newspapers. The result was that this feature on honey was used by nearly two hundred publications, with a combined total circulation of more than five and one-half million! In other words, one person out of twenty, throughout the nation, had it called to their attention that honey makes an excellent sweetener for coffee.

In view of this wide spread acceptance, we felt that the members of the American Honey Institute could further their interests by using extra proofs of this publicity feature; so we sent letters to beekeepers all over the United States, offering extra multilith copies of the original photograph without cost or obligation. Nearly three hundred and fifty requests were received, and over twenty-five thousand copies of this publicity feature were mailed out in response to them.

As a further merchandising aid, we developed an attractive four color window poster featuring honey. These posters were sent out to all of our local jobbers, who in turn passed them on to the beekeepers. Nearly three thousand of these posters were distributed.

In our 1937 publicity program we plan to feature honey occasionally in various recipe releases, and by calling attention to the use of honey in cooking, we hope to contribute something of real benefit to the honey industry.

EDITORIAL

Utilization of the Sweet Clover Plant

The research work carried on in the chemistry department of Macalester College in Minnesota in the utilization of the sweet clover plant is of special interest to beekeepers. Sweet clover has long been recognized as the best of honey plants and as a soil builder it is second to none. If profitable ways of utilization of the stems of the plant should be found it would extend the growing of the crop to an unknown extent.

Prof. Richard U. Jones, noting the vigorous growth of sweet clover, has sought new uses for the plant. Students under his direction have been working for several years. The first result was to make a fair grade of wrapping paper from the stalks but this hardly promised enough of profit to seem attractive.

Next the stems were distilled to make pyroligneous acid with a yield similar to that from wood. A similar quantity of acetic acid, acetone and wood alcohol were secured.

The latest work reported from the laboratory is the decomposition of the pyroligneous acid and tarry products into gas. Even the carbon has been changed into water gas. Thus it has been demonstrated that the entire plant, excepting the ash can be converted into gas.

Whether this work is likely to develop into a practical commercial application we are not informed but it is to be hoped that it will. We hope that Prof. Jones and his students will continue these investigations in search of still more uses for the sweet clover plant. The more useful it proves to be the larger the acreage of sweet clover is likely to be available to the beekeeper.

Indications are that the chemical laboratory is likely to transform our ways of living in the near future and that hundreds of new products and new applications are on the way.

—ABJ—

Minorcan Bees

Little has been heard of Minorcan bees in recent years but there was a time when they received much attention, especially in the British bee magazines. Minorca is a small island in the Mediterranean Sea and the native bees are very black, probably very similar to the black bees of Spain and adjacent countries.

Because of the isolation there was probably no mixing with bees of other races for centuries and even today it may well be that the black race can still be found there in its purity.

The popularity of the Minorcan bees was short lived because they had little to recommend them. Beside being very black in color, they were reported by those who tried them as unusually cross and much inclined to sting. It is difficult to maintain interest in cross bees even though other qualities are desirable.

—ABJ—

The Large Hive

The January Scottish Beekeeper has a most interesting review of the "Handy Book of Bees" by A. Pettigrew published in 1870. It is interesting to note that a few beekeepers appreciated the fundamentals of success before the time that movable frames, foundation and extractors came into common use.

The Pettigrew book must have been popular in its day since we have copies of four different editions in the American Bee Journal library. Within the pages of this little volume one finds ample evidence that its author was a practical beekeeper and a careful observer. Of special interest is his comment on hives, made at a time when there was but little appreciation of the requirements of the bees. We quote as follows:

"Now there is something which hinders the beekeepers of England from making as much money of their bees as they ought. Twenty-five years ago (1845) we told them that all the books that were ever published, and all that we could possibly say, would never put them on the high road to the successful and profitable management of their bees **unless they kept large hives.**

"Bonaparte, the great general, soon found that good luck attended those who had the most cannon; and he said, 'God was always on their side.' So in beekeeping, good luck attends those who use hives large enough to hold many bees. The secret of profit is here."

The large hive principle is now generally recognized but it has been but a few years since there were leaders loud in their insistence that the small hive was best. The general decline in the prosperity of their followers was sufficient evidence of their mistake.

Those who still cling to the small sized unit admit the necessity of ample room and add extra units to provide for it. Thus in this country the only argument now is whether it is better to use several small units or one large one to provide the necessary space for colony activity.

—ABJ—

Eliminating Non-Resistant Queens

Some years ago, (about 1920) A. V. Small made a suggestion which received but little attention at the time but which in the light of recent events may offer something of promise. He proposed to rear only disease resistant queens and to eliminate the unfit in the larval stage by exposing them to disease at time the queen-cells were grafted. He mixed dead matter from cells of American foulbrood with the royal jelly used in stocking the cells. Enough of the dead matter was used to discolor the jelly. From 150 cells thus prepared he succeeded in rearing two queens, but one would assume that these were disease resistant.

It might be worth-while to try out Small's suggestion and subject the stock thus secured to the same tests which have been used in the cooperative experiment and thus ascertain whether it has merit.

—ABJ—

Honey Absorbs Moisture

Much has been said in recent months about the increased use of honey in the baking trade. Perhaps it may not be common knowledge that much of this increase is due to the ability of honey to absorb and retain moisture. Briefly more honey is used by the bakers because the products do not dry out so quickly as when other sweetening agents are used.

A paper by R. E. Lothrop given at the San Antonio convention is well worth a little study by anyone interested in commercial outlets for honey. Lothrop discusses at length the ability of honey to absorb moisture and the place it finds in manufacturing because of that quality.

The writer once heard a large wholesale baker of the West tell something of the difficulties which he was compelled to meet because of the tendency of baked goods to dry so quickly in the dry mid-western climate. When he turned to the use of honey much of his loss from this cause was avoided.

The Lothrop paper reviews the place of honey in industry and points out the need for more careful study of honey for each use to which it is put. The increased demand in the baking trade has more than replaced the export market which formerly went to Germany. If such investigations as he suggests are equally favorable a very

greatly increased demand for honey in other channels may well be expected.

The striking results which have come from such studies as have already been made indicate that it is only necessary to ascertain the uses to which honey may properly be put to open markets far beyond the productive capacity of present day apiaries. Nowhere has the value of research been more apparent than in the beekeeping field.

—ABJ—

Honey in Cakes

What appears to be a valuable bit of research in the use of honey is reported by Harriet Morgan in the Journal of Home Economics for January, 1937. To determine the maximum amount of honey that can replace sugar in a basic cake formula, honey was added in the proportions of 25, 50, 75 and 100 per cent.

Briefly, cakes in which honey replaced 75 to 100 per cent sugar were heavy, low in height and yellow, with a pronounced astringent flavor. Cakes in which honey replaced 25 to 50 per cent sugar rose to a desirable height, were tender, light colored and delicately flavored.

The article discusses the technique of cake baking in a scientific manner with tables showing ingredients and analysis, and moisture content of different kinds of honey. It was found that as far as texture and lightness are concerned there was no difference with honey from different sources. Flavors, however, were less delicate in cakes made with the stronger honeys such as eucalyptus, buckwheat and cotton.

It was also found that cakes made with honey retain moisture longer than cakes made with sugar.

Such investigations as this are valuable to the industry. The information needed to enable the baker to make a dependable product is made available. It is this kind of work which the American Honey Institute was organized to foster.

It is interesting to note that Miss Morgan suggests that if the label gave the approximate composition of the honey and its acidity it would be easier to use honey as a sweetening agent in food recipes. Perhaps in time we may be able to provide that information. When honey is packed in central packing houses it will be possible to provide facilities for such analysis which can be printed on the labels of the different grades.

—ABJ—

Honey Jelly

Publications coming to us from Australia indicate much interest in honey jelly in that country. Just why it has failed to become popular here is a little hard to understand. Nearly everyone with whom we have discussed honey jelly has been favorably impressed with it. Persons tasting it for the first time nearly always display enthusiasm for the new product.

In view of this favorable first impression one would expect that it might become popular in the market. Those who have put it on sale have usually been disappointed in its slow movement.

The explanation probably lies in the fact that we are accustomed to high pressure sales methods and must be reminded again and again in order to maintain our interest in anything. Even such staple products as butter, oranges and milk now use large scale advertising space in the magazines and chain programs on the radio in order to hold the public attention.

It seems impossible to launch a new product, no matter what its quality, without a strenuous sales effort. Perhaps if some of the packers of table delicacies with national distribution would include honey jelly in their line, it might be made to become popular and establish a repeat sale which would make it profitable.

Honey jelly holds the possibility of offering an outlet for such large quantities of honey that it is well worth some attention on the part of those engaged in cultivating markets.

Perhaps if it could be brought prominently to the attention of the public through the home economics teachers and such agencies as the American Honey Institute results would be more apparent. Honey jelly is too attractive to be so easily forgotten.

What About Grasshoppers?

Entomologists are warning that we are threatened with a grasshopper invasion the coming season far more serious than for many years. Grasshoppers were very abundant in most of the sweet clover region the past season. Conditions were especially favorable for them and eggs were laid in unprecedented abundance. Should conditions continue favorable for grasshopper development through the coming spring it is possible that the insects may increase beyond the possibility of control.

In early days of settlement of the West there were several times when crops suffered very seriously from grasshoppers. In the vicinity of Winnipeg in what is now the Province of Manitoba losses of the settlers were very heavy in 1819 and 1820. There were immense flights of the migratory locust throughout the plains region as far south as Texas in 1845 and 1849. In 1855 the grasshoppers spread over an immense area both east and west of the Rockies. Pioneers wrote that during the best of the day grasshoppers were flying in such numbers as to obscure the sun. When they alighted they destroyed everything green. Along the shores of Great Salt Lake the bodies of the insects washed ashore were piled in rows so that one could have shovelled up wagonloads as easily as he might have done that much sand.

In 1856 outbreaks were serious in Minnesota and Iowa and in 1857 an area of 12,000 square miles in Texas was devasted so completely that everything cultivated by man was completely destroyed. In 1874 the disaster was so great as to arouse national sympathy and help such as has been the case with the recent flood. The last great outbreak came in 1878. Since that time grasshopper injury has been rather local and of comparative small importance until the recent past when there has been marked increase in numbers.

One cannot but wonder whether we are again to see an outbreak similar to the scourge which faced the early settlers in the plains area. Even a much milder invasion might well prove serious to the beekeeper since sweet clover is attractive to grasshoppers and that is the sole source of important surplus honey in a large area.

We of today have little conception of the suffering of the farmers in the region from Winnipeg south to Texas from this pest in the early days of white settlement.

—ABJ—

The Recent Flood and Beekeeping

A number of inquiries have come in from subscribers as to the effect of the floods on beekeepers and bee supply houses.

Replies have come to our letters sent out some time ago to both the Fred W. Muth Company located at Cincinnati, Ohio, and Walter T. Kelley at Paducah, Kentucky.

Muth's place of business was in water half way up the second story but they managed to get most of their material out before the waters did very great damage. Of course cleaning up the mess is part of their job but their letter states they are fully recovered to normal and ready to go ahead. Walter T. Kelley's business was fortunately above the flood waters so the only damage suffered there was from disconnected trains, mail and delivery service as well as, naturally, the excitement and inconvenience occasioned by flood refugees, etc.

It is too early yet to learn the damage done to beekeepers and bee outfits by the flood. A committee of the American Honey Producers' League is, we understand, investigating this at the present time and we hope to have something to report later on. Undoubtedly some beekeepers have been hard hit.

—ABJ—

Adaptability of Races

There has been much discussion of the question as to whether one race of bees can be best for all parts of the United States with its great diversity of climatic conditions. Some contend that the grey races are better for the high altitudes and northern areas while the Italians are best for the South. Thus far but little has come of the argument and each beekeeper decides for himself what race best suits his needs.

A letter from a correspondent in China tells us that the native bees thrive much better there than two colonies of Italians which he has imported. It would seem that a native should be much better suited to any region than a stranger from different conditions.

Red Clover Seed from Honeybee Pollination

I have noticed honeybees working on red clover ever since 1923 and up to 1929, but never paid much attention to its nectar contents. We were keeping in the neighborhood of about twenty-five colonies of bees up to the year 1930. After 1930 we increased to some fifty colonies. All our red clover had killed out in 1929 except three acres which we left for seed purpose (second cutting) and from which we threshed eleven bushels, twenty-three pounds. The field was close to my bee yard so I could watch the bees working on it every day for about ten or twelve days. They gathered a little honey; at least enough so I could get a taste of it. The flavor of red clover honey is not any too good. We kept all the seed for our own use but did not get a stand of red clover on account of dry weather until 1935, when we had eight acres, my neighbor having fourteen acres. Both fields were full of bright red blossoms for about two weeks and bees were just coming in with loads of nectar. But not all bees in my yard did gather nectar from red clover. I am not altogether sure, but believe that the offspring (hybrid) of three-banded and Caucasian bees are the best ones for gathering nectar from red clover, as those are the only ones that really gathered a surplus. We threshed twenty-seven bushels, 11 pounds from the eight acres and my neighbor thirty-two to thirty-three bushels from the fourteen acres, while another man living just a mile away only got seven bushels from eight acres, and another one a mile and a half away less than six bushels from eight acres, although their clover blossomed the same as ours. My seed and my neighbor's was from clover visited by tame bees before. The others were from seed bought outside. All red clover killed out during the winter of 1935-36.

Adolph R. Moesch,
Wisconsin.

—ABJ—

Booklet on Queen Introduction

"Introducing Queen Bees" is the title of a booklet of fourteen pages by G. H. Keen which is issued by the Australasian Beekeeper at West Maitland, New South Wales, Australia. In case any of our readers are interested, copies can be had from the above address for fifteen cents.

The author has brought together in brief form the various methods of queen introduction in common use and explains the merits of each.

What Do Your Records Show?

By H. W. Stewart,
Kansas.

AS an experimental approach to the problem of costs in honey production, the Kansas State Beekeepers' Association in 1936 fostered the distribution of an "Apiary Business Record Book" among its larger beekeepers. By the assistance of Dr. R. L. Parker, state apiarist, free publication was secured through the Extension Division of Kansas State College. Approximately 200 copies were sent out. This is our first adventure in trying to hitch up bookkeeping with beekeeping and driving them down the road together. Now that the year 1936 has just checked out, what result, if any, does the experiment show?

Accompanying each book was a letter signed by E. G. Kelly, specialist in entomology, urging all recipients to return their records to him prior to March 1, 1937, so that an analysis might be made as to profitable and unprofitable methods of management as practised in Kansas. My article appearing at this time may therefore seem premature. Let us see.

It is an old saying that great events cast their shadows before. What do the shadows say? Some time before this article was written I sent a number of postcards to beekeeping friends who operate on a commercial basis, asking them for information on cost of production. Only one of them has as yet replied by mail but several, meeting me personally, have remarked that they don't keep books—except the check book. Obviously that isn't bookkeeping, and while they are known as successful producers, none could say what his cost of production was per pound, although every one knew definitely the price per pound he was holding his honey at! If my inquiry is a fair cross-section of the whole, I am wondering how Professor Kelly is going to arrive at "profitable and unprofitable methods of production as practised in Kansas."

The plain inference is that beekeepers are not bookkeepers. And when, as a group, they will learn to put the "B" into beekeeping is of course an open question. The urgency for such a decision is the occasion or this article. True, they are not different from the farmer, nor even the small business man. Nevertheless, I am one of those who believe that haphazard ways and bungling along in any calling will always result in the economic depression of that calling, whatever it may be. Years ago the poor country printer (I was one in my youth) finally developed a cost accounting system which revolutionized prices for commercial printing, and reclaimed an industry from the poverty of its own creation. For five years I was assistant cashier of a good-sized national bank. At the end of the year the cashier carefully thumbed his note case, charging off all "bad paper" before he could know what the stock dividend should be. When we studied the sciences and mathematics in college, we were required, from a specific set of factors, to arrive at a definite conclusion. Needless to say "big business" is bookkeeper par excellence.

If, then, all of the mechanic and business achievements are so because of tireless experiment and accurate process, why should a simple adventure in fact-finding in so agreeable a calling as beekeeping fold up and pass out in the making? No one questions the advance made in the "art" of beekeeping. But isn't that only one-half the problem? Why beekeepers do not go all the way with their own problem is as great a conundrum to me, as is another riddle to Arlene Weidenkopf, why only 159 beekeepers out of 100,300 belong to the American Honey Producers' League.

Having become an accidental recruit to the beekeeping fraternity six years ago, I should like, at this point, to present some figures of my own, embarassing— but enlightening —as they would seem to be. From my beginning until now I know exactly what I have put into my apiary in money. I have 111 colonies in modern 10-frame hives, "two deep." Now if we divide $1804.83 by 111, we have the surprising quotient of $16.26, a total cost per colony—in money. This does not include any real property used as honey house, nor truck or automobile, but it does include everything else necessary to my apiary which is run for extracted honey. The shock of these figures is cushioned by the fact that my total cash income from my apiary during the six-year period has been $2,331.58 —exactly $21.00 per colony, or a net return over money expenditures of $526.75. I have nothing but first-class equipment in first-class condition. I could have taken equal capital, hunted out distressed beekeepers and accumulated many more colonies— and more grief too. And since I have had interests other than my apiary, my beekeeping has not yet attained the altitude of a vocation. I venture the challenge, however, that the aver-

age small beekeeper in Kansas or elsewhere has a record, if he has kept strict account, comparable to my own.

Now for the year 1936: From the 111 colonies I produced 12,720 pounds of extracted honey or an average of 115 pounds surplus per colony. I sold the entire output for $1,038.20, slightly above eight cents per pound. And, as we shall see, my computed cost per pound was slightly more than seven cents. Here is the tabulation:

Total cash outlay	$ 350.86
Honey house rental	96.00
Automobile expense	60.00
Interest on investment	108.24
Wages allowed myself	300.00
Total cost of crop	$ 915.10
Net profit over operation	123.10
Gross income resulting	$1,038.20

Explanation: Total cash outlay includes everything chargeable to apiary operations, queens, packages, equipment, containers, extra labor. I own a small cottage used as a honey house, having a rental value of $8.00 per month, hence rental charged to apiary on 12-month basis. I use Model A Ford with trailer attachment, charging $10.00 a month for six months for its part-time use. Interest is on $1,804.83 at 6%. Wages for myself are on six months basis of $25.00 per month. Allowance for depreciation is omitted because natural increase from "splits" and occasional swarms will easily absorb that item.

In conclusion: I am well aware as my exhibit shows that the cost of honey production on 100-colony basis is prohibitively high considered from a strictly business standpoint. Its only justification rests on a part-time or avocational basis. The showing is also helped this year by the high price for honey and the above-normal production. However, if my operations were raised to a 300-colony basis, costs would decrease and income increase in such proportion, I believe, as would constitute profitable apiary operation, or a going one-man concern. The meat in the cocoanut is simply this: Apiaries of 100 colonies or less are just playthings for the part-timer or for those who can afford to be small. The man who means business with bees should, in my judgment, place the minimum at 300 colonies, and strive for a higher figure. And he should train himself in putting the "B" into his beekeeping. It is fundamental to an enlightened industry. Bookkeeping will pay!

—ABJ—

Cheapening Through the Five-Pound Pail

By C. M. Litteljohn, Washington.

The five-pound pail of honey, as a specific entity and unit of sales, has been held to be a means of cheapening the beekeeper's product, and of bringing down prices to such low levels as to have certain deleterious effects within the industry. Although the five-pound pail, in a measure, creates a larger taste for honey and builds a Honey Consciousness, nevertheless such advantages are offset or mitigated by the cheapening process.

From the merchandising viewpoint, the five-pound pail is regarded in its cheaper aspects as placing honey too much upon the bargain counter of the large city—and of tearing down the price rather than building up any retail price structure that should place honey in higher brackets.

Cheapness in itself never pays. It is one of the banes of business. To put down cheapness, moreover, was one of the stout principles of the Hon. William McKinley, but little quoted today, since he was cut short in the prime of a brilliant career as Chief Executive of our nation.

Once the now almost forgotten former president showed with what disdain, impunity and utter contempt he viewed cheapness, observing in righteous indignation its lack of quality in the following words:

> "I do not prize the word 'cheap.' It is not a word of hope. It is not a word of comfort. It is not a word of inspiration. It is a badge of poverty. It is the sign of distress. Cheap merchandise means cheap men. And cheap men mean a cheap country."

Cheap honey, by the same token, may mean a cheap industry, rather than the quality one it should be.

As R. H. Kelty, president of the American Honey Institute, on his recent visitation to the beekeepers' associational regional conventions in the Pacific Northwest pointed out:

"The five-pound pail of honey is used as a football for price kicking in the big town;" and he urged the honey producers in order to combat this condition to hold their honey until prices are better, instead of dumping their products upon the market in the face of the kick-off of those five-pound pails that are used so much in the large cities as pivots of food sales, loss leaders, or patronage builders that serve deliberately to cheapen high grade honey.

Biennial Report of Michigan Dept. of Agri.

This report is ready for 1935-36. It contains 148 pages covering the progress in agriculture under Commissioner Thomson for the biennial period and includes also the report of the apiary division and results in disease control and eradication.

Michigan ranks second in honey production in the United States, exceeded only by California, which, in area, is nearly twice as large. There are 500 beekeepers in Michigan making a living from their bees, owning 200 to 1,000 colonies. They are commercial carlot producers.

No other state has so recognized the honeybee in its importance to the fruit and seed industries. The value of the fruit, clover, garden seeds, berries, melons and pickle crops of Michigan is approximately $21,000,000 and it is well recognized in that state that fruit or seed crops cannot be produced commercially at a profit except by the use of the honeybee as an agent of pollination.

The revenue from the registration law totals $10,632.75. Substantial county funds were provided also for making annual inspection in addition to the amount furnished by the state. Intensive work was done in the Thumb district. It is one of the best honey producing regions. The campaign was carried on also in the fruit belt, especially in Berrien, Van Buren, Allegan, Grand Traverse, Oceana, and Leelanau Counties. Leelanau County in 1936 entered the list of "clean" counties. There were only two diseased colonies in Grand Traverse and only one in Ottawa, and they should be among the "clean" counties in another season or two.

This biennial showed a total of 192,794 colonies inspected at a cost of .241c per colony. This is the lowest cost per colony of any biennial where the work was carried on on a statewide scale. There were also more colonies inspected than in any previous biennial in the history of apiary inspection in Michigan.

There were nineteen counties with complete inspection in 1935 and twenty in 1936. Forty-eight counties received one complete inspection during the 1935-36 biennial in addition to those given an annual inspection. At present in Michigan there are twenty-four clean counties, nineteen nearly clean counties with less than three per cent disease, six counties with more than three per cent and less than five per cent, seventeen counties with more than five per cent and less than ten per cent, and seventeen counties with more than ten per cent disease.

Probably copies of this report may be obtained from the Michigan State Department of Agriculture, Lansing, Michigan.

Statistics from Prairie Provinces

By F. H. Fullerton,
Vancouver, B. C.

The largest honey crop for many years on the Prairie Provinces was recorded in 1936, according to a recent survey compiled by the Winnipeg Free Press from reports of official apiarists in Manitoba, Saskatchewan and Alberta. More than a million dollars' worth of honey was produced in these three provinces during the year, and by the middle of January, two-thirds of the crop had been sold.

In Manitoba, according to L. T. Floyd, there were 3,394 apiaries with 49,979 colonies; a total of 7,924,844 pounds of honey with approximately 82,000 pounds of beeswax. The total value was $571,139.08. The quality was fine and entries in the granulated class at the Royal Agricultural Fair in Toronto secured first, second and third places in competition with all other entries. In liquid extracted honey, Manitoba secured second and third prizes, while in beeswax first and second prizes were taken.

R. M. Pugh, of Saskatchewan, gives the 1936 honey crop as two and one-half times larger than any previous crop, with a large increase in the average production per colony of 155 pounds for 1936 as compared with 74.7 pounds in 1935. A total of 52,879 pounds of comb honey and 2,583,396 pounds of extracted honey were produced in 1936, with an approximate value of $263,114.05. The honey never moved more rapidly than it did in 1936, most of the crop having been disposed of by the middle of January. The prospects for 1937 are not too favorable, as the dry weather in the fall did not encourage the growth of the large acreage of seeded sweet clover, so a clover shortage may be expected next year.

S. O. Hillerud of Alberta indicates an approximate production of 1,850,000 pounds of honey as compared with 1,100,000 pounds in 1935. The provincial average in 1935 was 84 pounds and in 1936, 156 pounds.

There is a marked tendency towards consolidation in the southern part of Alberta, the smaller beekeepers selling out to large ones who make beekeeping their speciality. In Mr. Hillerud's report, he expressed the necessity for the development of export markets, asking that more consideration be given by beekeepers to the possibility of English markets in the future.

———ABJ———

Oh, Well!

Around and around the seasons roll.
Each brings us nearer to our goal—
Or farther away, as the case may be,
Which gives to life its piquancy.

—W. H. Hull.

Improving Package Bee Cage

By Alfred Pering,

Florida.

THE writer has received several patterns of cages designed for the shipment of package bees. Some of these cages have been crude in design and very unhandy to get the bees out. Others seem to have been designed for the convenience of the shipper alone. The cages used in this day and date are a decided improvement over those received during the early experience of many purchases of package bees, when the business of shipping bees from the South to northern states and into Canada was first being built up.

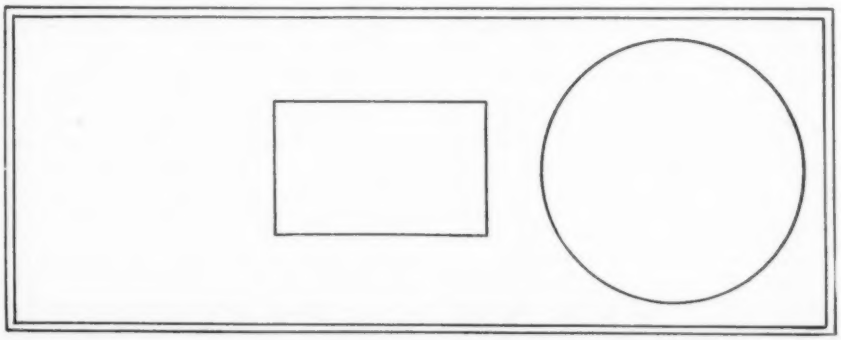
Having just received a few packages, I have now had some very late experience and had an opportunity to note some of the faults and some of the advantages in the design of the different patterns of package cages handled in the last few days.

One of the improvements noted is the manner of placing the queen cage within the package. Usually this has been by a wire suspending the queen cage in what the shipper intended to be in the midst of the cluster of bees. When the purchaser received his bees he found it necessary to pull the queen cage out with all the bees that could stick to it, and shake them off before the queen could be placed for introduction. In the meantime other bees were escaping and were on the wing or crawling out and over the top or sides of the package cage, and the operator found it necessary to do some pretty quick work and a very near impossible job of closing up without killing at least a bee or two; and all of us know what smashing even one bee does in the way of arousing the others that get that sour odor that is sent up by the crushed victim, and the operator is apt to pay for what he has unintentionally done, in the receiving of a few stings, or at least the threat of stings, which to some of us is about as bad.

In several of the package cages just received, the queen cages were suspended through a hole located alongside the feeder can, by nailing a piece of tin across the end of the queen cage too large to pass through the hole. This enables the purchaser to remove the queen cage from the package without allowing the escape of bees by sliding a piece of tin under the end of the queen cage as the cage is drawn out, which covers the hole, and keeps the bees back until one is ready to release the whole package. This arrangement was the most convenient over all others thus far received.

Now, here is what I think would be an improvement.

It is necessary to remove the feeder can in order to allow the bees to come forth from the package cage when hiving these packages as the hole through which the queen cage is suspended is not large enough to allow quick emptying of the package. One wants the bees out and to pile over the queen cage and begin liberating her as soon as possible and to keep her warm if the weather is cool enough to make "hovering" necessary. This makes it necessary to remove the feeder can in order to secure the desired larger opening through which the bees can quickly pass; or when one wishes to make a quick job by shaking the bees out. When the can of feed is drawn out, all the bees that are able to will cling to the can. In cases where a cloth over the mouth of the feeder can is used, all the more bees can hang on to it, as the can is drawn up. This "holding on tight" by the bees is lessened considerably by having the edges of the cloth trimmed close up to the can lid, and the bees can be held within the package much easier by sliding the piece of tin under the can as it is drawn up, and the bees kept within the package the same as



Design of cage according to Pering's suggestions.

in the way the bees are prevented from escaping from the hole through which the queen cage was suspended.

My suggestion of improvement is to locate the hole for shaking in the bees and to hold the feeder can well toward one end of the package cage, and the hole for suspending the queen cage toward the center of the top of the package cage. This hole for holding the queen cage should be as large as possible. My suggestion would be just the right size to admit a six-hole cage when lying flat. This six-hole cage could be as easily suspended as the smaller cage, by having a sheet of tin larger all around than the outside measure of the queen cage and nailed to the back of the cage; then when the thin board is nailed over all, that is, over both the opening for the feeder can and over the opening for the queen cage, all is secure, and when the package of bees is received by the purchaser, he removes the thin board on top, and does not have to remove the feeder can unless he wants to. All he does is to lift the queen cage up slowly, slip a piece of tin under the cage, which retains the bees until he gets the queen cage located for introduction and is ready to either shake out the bees, or lay the shipping cage down on its side and allow the bees to come out at their pleasure. (And if you ask me, it seems to be a very great pleasure for them to get out.)

If the receiver wants to shake the bees out, he removes the feeder can after removing the queen cage and he then has a double opening through which to shake out the bees.

It appears to me that this pattern cage would be very desirable for either the timid, the beginner or even an old hand at the business of hiving package bees.

The drawing, representing the top of a package cage, shows the proposed location of the opening for the feeder can and the opening for the six-hole size queen cage.

—ABJ—

How to Use Beeswax in Decorating Easter Eggs

By Austin E. Fife, Massachusetts.

BRIGHT colored eggs in varied designs form an important part of Easter ceremonies all over the Christian world. In Roumania beeswax is so necessary a product in the process of coloring the eggs that scarcely any are decorated there without using it. The eggs are usually colored a bright red except for the designs which appear in white. This is accomplished by first washing the eggs, sometimes in whey, so that they may take colors and the beeswax more easily. The eggs are then warmed and melted beeswax is applied by means of a small metal tube either in lines or points, thus forming the design. After the application of the wax, the eggs are boiled in a red dye. When the eggs are removed they are a bright red in color, except for the design which the beeswax has kept white. Finally, the wax is wiped off and the Roumanian Easter egg is ready for festivities.

In some localities eggs are ornamented with designs in three or four colors. To do this the process just described is repeated again and again, boiling the eggs first in the lightest colors and then in the darker ones. The beeswax must be applied in the proper places each time in order to keep the entire egg from becoming colored. Often the eggs are decorated with the design of a bee, as illustrated in the accompanying drawing.

Easter egg designed in the Roumanian manner.

By Ella Thompson,
Indiana.

An attractive way to decorate Easter eggs comes from Germany and is little known in this country. First, with a lead pencil, draw pictures upon the eggs, a landscape, conventional design, anything. Melt in a small vessel (lid of a baking powder can is fine) a little beeswax. Dip into it, a blunt instrument, perhaps a key, and trace the pictures with the hot liquid. Boil in Easter egg dye until eggs are hard boiled. When removed, the wax shall have disappeared and creamy pictures remain. A satisfactory home dye that produces a rich shade of brown can be made by soaking onion skins over night in enough water to cover, cook next day in same water and drain off the liquid in which cook the waxed eggs.

Queen Supersedure in Package Bees

Quality of Queens

By W. Leroy Bell,
California.

ONE of the greatest handicaps the northern beekeeper has is from the supersedure of queens in package bees. This is particularly true with those who kill their bees in the fall and buy again in the spring. Thirty per cent supersedure is not uncommon. One beekeeper says every supersedure costs him from 30 to 40 pounds of honey. At this rate it would take 900 to 1200 pounds of honey out of every 100 colonies operated to pay for supersedure. The thirty queens lost cost $22.50 in the original purchase but the loss of honey at 7 cents means about $72 to $96 or, using the smallest figure, $72 plus $22.50 equals $94.50, or $3.15 per queen.

Every effort is being made to correct this serious fault and insure the buyer of good queens. It has been contended that old bees die off before young ones emerge, leaving the newly installed colony finally smaller than when the queen was first introduced. The bees blame the queen for this, and proceed to rear another. This may be a factor. However, I'll bet a cookie you can't stop supersedure by adding more bees to make up the slack from dwindling. I would not be surprised if it hastened up supersedure.

Queens produced to suit package shipments and guarantee a minimum of supersedure cannot be obtained for the regular price of queens. They would have to cost more and the amount which could be raised in a single season would be much less than now.

Is the Package With Introduced Queen Better?

By Fred Ephardt,
Louisiana.

I think the only solution to package supersedure is in having a package in which the young laying queen is already introduced. Hundreds of comb packages of bees and queens are shipped every year and complaints are few about supersedure.

Such packages are not difficult to put up. The shipping case is constructed to hold standard or Modified Dadant frames solidly in the cage. Select combs, with honey and sealed brood, are provided and live bees added to make shipping weight. Introduce queens, one to each package. After introduction, they are ready to ship.

An important organ of the queen is the egg sac. One cannot be too careful not to hurt the queen. Her body loaded with eggs is delicate, and jarring or tossing around, as

(Just turn the page, please:)

caged queens are, might impair laying ability for life. In her confinement she must shrink back to the size of a virgin.

By shipping queens already introduced on combs, the queen retains full size and stops egg-laying only momentarily. She is able to dispose of the eggs as fast as they are formed, in the cells of the comb, right where they belong. She is bound to make a good queen.

Such a package arrives in the best condition with a contented and satisfied cluster of bees. They feed on the journey from natural food, the package is easy to transfer, the bees and queen are at home at once, the brood will emerge continuously and the supply of young bees is added daily to replace those lost from work. Such a colony will not think about supersedure.

———ABJ———

Danish Bee Editor Retires

The December number of Tidskrift for Biavl, gives notice of the retirement of its editor, Hr. N. S. Kristensen, who is discontinuing his position after a total of thirty-eight years served.

His paper celebrated its seventieth anniversary, having been started in 1866. It now claims 15,000 subscribers and is owned by the Danish Beekeepers' Association. The new editor is J. M. Moller, President of the Association.

J. Skovbo,
Oregon.

———ABJ———

Pledges of Alabama Beekeepers to the American Honey Institute

W. E. Harrell, Hayneville	$30.00
M. C. Berry, Montgomery	30.00
J. M. Cutts & Sons, Montgomery, Rt .1	30.00
Jasper Knight, Hayneville	25.00
H. C. Short, Fitzpatrick	20.00
Bolling Bee Co., Bolling	20.00
P. M. Williams, Castleberry	15.00
Caucasian Apiaries, Brooklyn	15.00
Holder's Apiaries, Citronelle	15.00
W. J. Forehand & Sons, Ft. Deposit	15.00
David Running, Sumterville	15.00
N. B. Smith & Co., Calhoun	15.00
Citronelle Bee Co., Citronelle	15.00
P. B. Skinner, Greenville	10.00
G. A. Taylor, Luverne	10.00
Alabama Apiaries, Mt. Pleasant	10.00
Calvert Apiaries, Calvert	10.00
Lewis & Tillery Bee Co., Greenville	7.50
J. F. McVay, Jackson	7.50
Crenshaw County Apiaries, Rutledge	7.50
Thomas Atchison, Montgomery	5.00
V. R. Thagard Co., Greenville	5.00
A. J. Hook, Eutaw	5.00
Graydon Bros., Greenville	5.00
Southern Honey Acres (M. F. Gusdorf), Selma	5.00
Tillery Brothers, Greenville	5.00
H. M. Norwood, 1141 Princeton Ave., Birmingham	5.00
Silver Run Apiaries (W. E. Streetman), Phenix City	5.00
Prof. J. M. Rehan, Auburn	5.00
E. A. Simmons Apiaries, Greenville	2.50
Bagby Hall, Birmingham	2.00
James N. Pearson, Nauvoo	1.00
Total	$373.00

Flighty stirs a witches' brew.

The Amusing Adventures of Flighty

February 1, 1937.

HELLO FOLKS: I'm just willing to bet some of you think I don't get any mail service up here after the snow falls, or that my ink froze up, or that I had such a grand season I want to keep it to myself. But the truth of the matter is that your friend allowed himself to be confined in a hospital for three months to divorce his former means of support, those appendages called crutches.

Now that we are near the beginning of another production year, a period of optimism for all beekeepers, I can look back at our 1936 season without shuddering myself into a dance. Wow! What a season.

All our past records showed that from our twenty-seven colonies we should reap, under our plan of annual extermination, some 5,000 pounds of honey. What did we get? One thousand pounds. Federal market reports will bear us out, it was the worst year in the history of northern Michigan beekeeping. That hot wave hit us July first and wilted, at the very beginning, every possible chance for a crop.

But we salvaged what we could and put our honey onto the market in retail packs, using the Michigan Department of Agriculture bonded labels, grading ours, "Michigan Fancy." For these packs we got sixty cents f.o.b. for five-pound pails and twenty-five cents f.o.b. for pints. These prices represented thirty per cent jobber's discount from list price. Thus pails sold over store counters at eight-five cents and pints brought thirty-five cents. Now—what did **you** get for **your** honey in small packs?

We were surprised to find we had no trouble in getting our price, even from chain stores. But as usual we had to turn down many orders. The same old story, Maurice. When one buys and repacks another's honey, he has to derive something besides pleasure from the job, else why is business. It does not seem that two cents per pound margin is asking too much. But when you figure you can pay eight cents, your neighbor wants nine, if you can stand to pay nine, he wants ten. So it is up to us to produce more, and let others go their way, selling in small containers at a lower price per pound than we offered.

Does our 1936 colony count of twenty-seven seem just a mere handful to you? I started fussing and experimenting with my own bees in 1932, starting with five colonies. From observation I had seen too many apiary enterprises fold up under financial stress due to too rapid expansion. Right then I resolved, regardless of season or demand, I would not increase more than fifty per cent any year.

1932—5, 1933—8, 1934—12, 1935—18, 1936—27, 1937—41. Rather slow isn't it, but it is a blame sight safer. Besides, after all, we do want to stay in the business. In ordering our spring packages we order ten per cent more than our schedule. By our way of thinking this should take care of loss by shrinkage and supersedure.

Each spring it has been my lot to prepare the feeding syrup, but last fall we secured enough pollen and honey to start our 1937 packages right off on the combs, which is as it should be.

I just received twenty very attractive easel signs from the State Department of Foods and Standards, which advertise bonded farm produce. My, these will be a big help in the stores. I was surprised when George S. Barnard, chief of the department, wrote that only nine honey producers had taken advantage of registering under this plan of advertising Michigan farm produce.

—o—

February 2, 1937.

Boy, I thought for a whole day that I wasn't going to be able to finish this. I received a letter this morning containing a check in payment of an over-due honey account and I was so absorbed in admiring that long blue slip of paper that I

almost blew up when I heard a noise like a time bomb (not that I'm acquainted with the actual sound). Whirr, tick, whirr, whirr. I pushed hastily away from the desk, waited, sneaked back and looked under piles of paper, and discovered—nothing. My fright was replaced by bewilderment, until I started to type again, and the carriage refused to move. Was I sick! Apparently the spring on the old Oliver No. 9 that had withstood the banging of two generations, was through. As far as I was concerned, that fresh blue check certainly wasn't going to be spent for typewriter repairs. The rest of the day I sat around the house feeling, I'm ashamed to say—moody.

To Mrs. Flighty, I said, "That typewriter is giving me a headache, being idle like that when I want to use it."

"Then we are even," she replied, "It gives me a headache when you are using it."

Like a whipped dog, I sneaked back to the machine and prepared to wreck it, when to my surprise I found that just the return cord was broken. Tish, tish, all that fuss over a piece of string. A piece of wrapping cord rubbed with beeswax soon put the typewriter into production again, and another mountain became a mole hill.

At this time, when my thoughts keep reviewing the events of the past year, I can't help but think of two interesting people.

One is a little boy whose name is Frankie. He belongs to a neighbor but spent much of his time watching operations at our bee yard. One day he was absorbed in watching bumblebees trying to gain entrance to the hives.

"Look, Flighty," he called, "here's the biggest bee I ever saw."

"Why," I answered, "the one you just saw, you said was as big as a dollar."

"Yeah, but this one is as big as a dollar and a half."

Suddenly he noticed a honeybee crawling on the ground, headed for his bare feet. He had been consoled by being told that when a bee stung him "properly," it died. While the bee hadn't shown signs of attack as yet, he had the urge to stamp on it.

"Do you care?" he queried.

"No, go ahead, but be sure you don't miss," I warned, "because if you do, that bee will have your number, and will keep after you until he gets you."

With some hesitation he jumped for poor bee—and missed. The last I knew the bee hadn't caught up with him, but to little Frankie, every bee is that very one that has his number. He was fearful September 8th when we killed our bees, lest the number-getter had escaped.

But Frankie is good advertising. He likes our freshly aluminum painted hives and delights in telling people about the golden honey from silver

(Please turn to page 135)

—ABJ—

B. A. Hadsell Arizona Pioneer

B. A. HADSELL

December brought the death of B. A. Hadsell, of Buckeye, Arizona. The picture of him here was sent to us by him in January of 1935. That same date he wrote: "I think it was the year before American Bee Journal was published that I started with one colony in Ohio. A neighbor boy helped me hive the first swarm. He was barefooted, bareheaded with sleeves rolled up, without veil or smoker. I was dressed the same way, our first lessons in bee culture.

"I saw the need of movable frames and devised a square movable frame hive transferring bees from a neighbor into it. Bees were a sideline while Mother and I ran the farm during the Civil War. I tried to keep up with advanced methods. I think I got my first Italian queens from Langstroth. When I came to Arizona forty years ago, I found frame hives in general use."

Mr. Hadsell became a very extensive beekeeper and in 1935 had twenty-four apiaries and was pushing the business to fill a greater expanse. Arizona loses one of her foremost beekeepers and the country one more of the old pioneers. Mr. Hadsell changed methods as times changed, and had become a very modern, large scale extracted honey producer. He was seventy-eight years old.

The Importance of Clean Honey

(Continued from page 124)

had any more difficulty that we would be wiped off his list as a source of honey supply and that he would endeavor to get some other product to take its place.

"You will have to watch this carefully on this year's honey shipments as he had similar complaints last year, but instead of improved conditions he has had an increased number of complaints. The buyer as well as the writer hate to complain about things like this and prefer to have business go along smoothly, but you can hardly blame us if we lose this business. Isn't there something we can do?

"In the next shipment it must be positively guaranteed that there will be no bees in the honey. I cannot express to you how serious this matter is and would appreciate full investigation on your part and suggest that we get our buyer in the proper frame of mind as this is definitely serious and certainly neither you nor I want to lose out on this business for all time."

It is quite evident that this buyer is justified in his complaint. We got him to use honey in volume when he formerly used sugar products and now we do not want to lose him.

We carefully examine each and every can of honey that we bring into our own warehouse. On the honey that we brought in for this shipment we opened up the cans and inspected each and every one. Wherever we found anything that appeared to be unsatisfactory with indications of dirt or foam we took the can out and used it in some of the lots that we were liquefying and straining in our warehouse in Los Angeles.

We realize of course the possibility of a bee or two getting into the honey when the beekeepers are filling the cans. On the other hand, this does not help out the industry as when a baker gets a bee in his batch of bread it does not make him happy about it, particularly if he has to throw the batch away.

This complaint has also come from other sources. **Some action must be taken by beekeepers generally to see that a cleaner product is put out.**

We have many evidences of lack of care in putting up honey; in fact, we positively know that it has cost us many sales in the past because customers have wanted to liquefy the honey in the five gallon cans for their use, and invariably they find that they have to strain it, due to foam or something on top. This causes them to become dissatisfied, as the product is unsatisfactory.

In addition to the complaint about

(Just turn the page, please!)

dirty honey we have complaints that many dirty and rusty secondhand cans are used for the packing of honey. These contaminate the honey and a used can is certainly not suitable for a fine food product such as honey. We urgently suggest that all honey be packed in new cans which is the only sanitary package for it.

—ABJ—

Honey House & Workshop

(Continued from page 123)

edges are then placed between the boards as the floor is laid, being held in place by nails driven through the iron into the edge of the board, and then tightly pinched between the board to which it has been nailed and the next floor board. When the floor has all been laid, the joints between the strips of iron are soldered, thus making the whole floor water tight.

The best operators require that the honey house floor be kept clean and free from any accumulation of dirt; nor should a sticky floor be tolerated. Any spilled honey should be washed or scrubbed up immediately and the floor thoroughly cleaned at the end of each day's work.

A floor that vibrates when machinery is running is tiring to those who work on it. Some think this a minor consideration but it is really a matter of importance. The floor of the extracting room, if not of cement on the ground, should be constructed with beams and joists at least twice as strong as used in ordinary floors, and should be practically as firm as a concrete floor on the ground.

Honey House Walls.

The interior of the honey house, particularly the extracting room, should be lined in such a manner that hose and broom may be used freely on it to remove all dust and soiling. With accumulations of dust on ceilings, rafters, joists, and in odd corners; with honey being sprayed or splashed on walls, as occurs in extracting rooms; and with unclean floors, a honey house may become a very unpleasant and unsanitary place. Walls should be washed down and floors scrubbed frequently.

Tongued and grooved ceiling, hard plaster, sheets of flat galvanized iron, or some kinds of non-absorbent wall board are good for inner walls if kept well painted.

Such extreme care in keeping the place clean and sanitary is not absolutely necessary in a room that is used merely for storage, but where honey is being extracted and otherwise handled in contact with the air, the interior of the room should be as sanitary as any other factory where food is being prepared.

By G. H. Cale

I AM much interested in the comments on disease resistance by Inspector Mraz and the reply by Field Editor Pellett. I want to add an observation of my own which may or may not be significant.

Years ago, disease with us was a problem. It was ever present and struck with unexpectedness and severity, often taking an entire yard or an uncomfortable percentage.

One thing seemed to be common among bees which were less frequently subject to disease and that was a compact, well-ordered brood nest. The queen whose egg laying resulted in the occupancy of every cell in symmetrical order, with a constant demand on the bees to keep things cleaned up and polished out for use, seemed to produce colonies that showed less disease than colonies headed by queens with a habit of scattered brood rearing. This became so apparent that we began to choose queens with this laying habit. Now, after a number of years, our records show a decided decrease in the amount of disease. Whether it is because of this fact, or whether it is because there is less disease due to more thorough and careful bee inspection, or whether it is due to some periodicity in the ebb and flow of disease occurrence, we do not know. Has anybody else anything to bear of this suggestion?

— o —

From Sechrist, in far-off tropical Tahiti, comes a comment on our November "All Around the Bee Yard" item discussing two queens in one hive. He says, "I think you missed the point that causes most of us to want to experiment with that subject. Here it is: We are not wanting to get over-populous colonies nor abnormally strong colonies. Some of you folks who live in the white clover and sweet clover region do get colonies strong enough for successful storing of honey without any effort, and have them ready for the flow, simply by seeing that they have plenty of stores on which to build up, a good queen and a clear brood nest.

"But imagine a situation like the one we have here, or in the orange region of California, or in some sweet clover region where there is too scanty a spring flow to build colonies to standard strength by the time of the honeyflow. What are you going to do about that?

"DeMuth, when he visited California, said that the only reason beekeepers there seldom get a good orange crop is because they do not have enough bees to store it. That is true.

"So what? DeMuth said, winter them well, and have plenty of honey in the hive for spring build up. Once in a while that works, but mostly it does not. The winter weather is such that unless beekeepers move their bees to the mountains where there is some cold weather, the bees usually keep up brood rearing all winter, and by spring there is no honey left in the hives, and often few bees; instead of extra food in the food chamber.

"Of course the desirable thing is to keep the colony as small as possible until the right time to begin to build up for the orange flow, and then let them boom. I have wintered three-frame nuclei and had them in as good shape for the flow as a two-story over-wintered colony with only a few pounds of honey consumed in winter. The time is so short for them to build up before orange, that one queen often cannot lay enough eggs to make a colony big enough to gather and store honey.

"So we think that two queens may make enough bees for such a colony. See the point? Often there is a shortage of pollen in the spring, and but little in the hive carried over winter. If the double or two queen hive results in extra pollen in the middle compartment, this may help to solve the problem.

"So, in the sweet clover region, where there is no dandelion, it is hard to have enough honey in the hive to carry the bees through until sweet clover. Sweet clover honey often candies and the bees starve on it, unless the weather is such that they can get out to carry water in the early spring. Of course, with dandelion, the problem is settled. One queen can produce a good colony. Where there is no dandelion, two queens might produce a colony more certainly.

"Except for this comment, I think you are right. What is the value of having two queens in one hive if as much or more honey may be produced independently in two hives? But if neither of the two hives have enough bees to store more than twenty pounds, and two queens will produce bees to store 200 pounds, it

looks as though we could afford to use the extra queen."

— o —

Right you are, friend Sechrist! We are in one of those places here in central Illinois and western Iowa where we think, at least, there is abundant pollen and wonderful sources for spring brood rearing. In circumstances like those you mention, two queens would surely solve the problem. Thanks for the comments. I hope folks in locations like those Sechrist describes will try the two-queen system thoroughly. We are going to try it ourselves, as we do not know much about it. My comment was made to arouse thought and apparently it has accomplished its purpose.

— o —

And why shouldn't we try it? When Fred Schappi of Colorado writes in February "Item" that he uses two queens freely in his hives without excluders and gets twelve to fourteen supers of honey! That would cause anyone to want to try it, wouldn't it? Put your supers on about the time of apple blossom, and put four combs of brood over the top super with a flight space and let the extra queen mate there. He claims to have averaged 600 pounds to a colony with this system. That gives us a black eye; 250 in the best year is the best we have been able to do so far.

— o —

It took Dr. Milum, at the University of Illinois, and Hambleton's office in Washington, to teach us finally what constitutes a good strainer for clarifying honey. The United States government grade indicates the use of what is called bolting cloth, a very fine woven, mesh-free cloth, through which small particles of sediment cannot pass. Honey heated to about 120 to 140 degrees and poured through one thickness of this bolting cloth comes out clean and nice regardless of the amount of material in it to begin with. When using bolting cloth it is best first to strain the honey through two thicknesses of cheese cloth; or if it contains much more material, wax, and so on, to pass it through an Alexander metal strainer, then through two thicknesses of cheese cloth, and finally through the bolting cloth.

Dr. Milum uses a mesh strainer like a milk strainer or a flower sack through which the hot honey is passed. It works more slowly, but the fine hairy fabric which is everywhere present in this strainer apparently takes out even the extremely small crystal nuclei which cause quick granulation. We have not used either of these last two strainers, but have plenty of experience with the bolting cloth. We have seen Dr. Milum's samples, however, and I think we can unhesitatingly recommend them for use in commercial preparation of honey for market.

The Agricultural Gazette of New South Wales is always interesting. So, is the New Zealand "Smallholder." Both Australia and New Zealand are fascinating from the standpoint of beekeeping. Their producers are about like ours, having the same kind of equipment, methods and understanding of bees, and commercial honey production among them has reached a high level.

In the Agricultural Gazette of New South Wales for December, 1936, they speak about a drought in that country which is "a blessing in disguise." H. C. Stening, chief instructor of agriculture, writer of the article, comments that the "protracted dry spell in the coastal districts resulted in a decline in dairy production and indicated the lack of provision generally made against lean periods. This resulted in a more general adoption of the practice of conserving fodder, for use not only during lengthy dry periods, but also during the few months in late winter and early spring when supplementary feeding is necessary if continuity of production is to be maintained and stock are to be prevented from losing condition.

"Pasture improvement and the cultivation of fodder crops must go hand in hand with fodder conservation."

The drought in our country has also centered the attention of the farmer on the need for fodder conservation and improvement of pasture. The sweet clover area has to have an increased acreage of sweet clover for pasture purposes. All through the drought area where native grasses failed utterly, sweet clover came through excellent; so it is, indeed, a blessing in disguise. We certainly don't hope for more droughts. They hurt the farmer generally and ourselves particularly, but we hope that the interest in sweet clover has been heightened and made permanent by the experience.

— o —

In the same issue of "The Agricultural Gazette," W. A. Goodacre, Senior Apiary Instructor of New South Wales comments on a probable serious shortage of pollen in the inland areas the current summer, with the result that bees were crowded on to sites where the Yellow Box is showing bud prospects. There is little other flora to blossom along with it. "The Yellow Box, while an excellent honey tree, does not yield pollen, the nitrogenous food so necessary for bees. Colonies often suffer severely after a few weeks of heavy work on the honeyflow, and brood rearing is seriously curtailed through pollen shortage, the colonies become weakened in population and it is often necessary to move the bees to save them. We advise the use of pollen substitutes."

(Please turn to top page 139)

Adventures of Flighty

(Continued from page 133)

hives. But what he wants to know about bees would keep Jim Hambleton busy. I suggested taking him to a bee meeting, but he finally backed out to go to a ball game.

"Flighty, I ain't going to your old bee meeting."

"Okey," I answered, "but such language. Don't you know, I am not going, you are not going, he is not going. We are not going, you are not going, they are not going."

"Gee," he said, "ain't anybody going?"

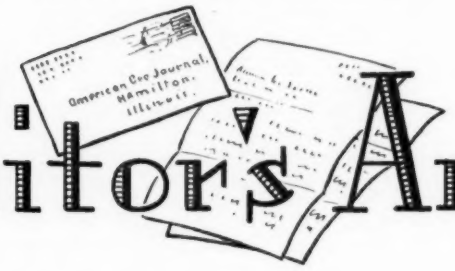
— o —

The second Sunday in July saw our first swarm leave the hive. Everything was excitement even to one particular neighbor. You know the kind, always telling about catching swarms in the good old days. I made matters worse by acting unconcerned. Our excited friend insisted on playing Boy Scout and bring the swarm back. On went my veil, his pole climbers, a safety belt which carried the smoker, a saw, and a hand-line. Thus attired he climbed the 30 feet up the elm tree and proceeded cautiously out onto a shaky limb, which was struggling to hold both bees and neighbor. Industriously and with much care he sawed away at the springy limb. Just as it was about to sever, he shouted with astonishment, the bees were leaving in a huff. But not to some unknown distance as he feared, but back to the old stand and their clipped queen. Our neighbor does not mention swarm catching now.

— o —

I, for one, like the new 1937 style of the American Bee Journal, but no more than I like Maurice's market report. Of all the attempts to diagnose the market, I think the American Bee Journal is most accurate and conservative. Everyone knows that such a job is a real undertaking with such variation and unstability in prices. We try to scale our prices as suggested to us once by Russell Kelty. Determine a base carlot price (what you can actually get for your honey), then figure tin pack at twice the base price per pound retail, and three times the base price per pound for glass pack. We find this is a very satisfactory scale, the difficulty arises from establishing an accurate base price. We find American Bee Journal report a good reference. Let's take for instance this year's report of six and half cents offer for Michigan. This makes the retail price of five-pound pails sixty-five cents, of pound jars, nineteen and a half cents. In selling to grocers and jobbers we highly recommend the American Bee Journal discounts, if f.o.b.

In this era of statistics, who knows what the next four years will bring in the way of "nu-mericals"?



The Editor's Answers

Sheet Asbestos for Insulation

Are there experiments to show the advantages or disadvantages in the use of sheet asbestos to modify both winter and summer temperatures? TEXAS.

Answer by Jas. I. Hambleton, National Agricultural Research Center, Beltsville, Maryland.—Althought the fire resisting qualities of sheet asbestos are excellent, it is not necessarily a good insulator. Pressed asbestos, for example, is not quite as good an insulator as white pine or cypress, nor is it as good as three-ply flexible tar roofing Asbestos paper and corrugated asbestos paper with air spaces have much higher insulating value than asbestos sheet. These comparisons, of course, are based on all materials being of the same thickness. Under the circumstances there would appear to be no advantages in using sheet asbestos for packing beehives to modify the temperature.

—o—

Answer by Dr. R. L. Parker, Kansas State College, Manhattan, Kansas.—In the Smithsonian Physical Tables, Edition 1923, page 215, by Frederick E. Fowle, is given a table of "Thermal Conductivities of Insulating Materials," which is as follows:

Material	Conductivity*	Density g/cm3	Remarks
Flaxlinum or celotex	0.000113	0.18	Vegetable fibers—firm and flexible
Asbestos mill board	0.00029	0.97	Pressed asbestos, firm, easy broke
Woods, kiln dried:			
Cypress	0.00023	0.46	
White pine	0.00027	0.50	
Other types of wood:			
Shavings	0.00024		
Sawdust	0.00035		
"Temprite" paper	0.0000889		Treated ground paper

*To convert conductivity to (British thermal units per hour, per sq. ft., per 1°F., per 1" thickness) divide by 0.000342.

Asbestos mill board is a pressed asbestos, firm and easily broken. It has a conductivity of 0.00029 and has a density of 0.97.

The following table of some of the common materials that might be or could be used for insulating purposes:

Conductivities of Building Materials

(Tentatively Adopted)

A. Internal conductivities (Expressed in B.t.u. per hour per sq. ft. per 1°F. per 1" thickness, unless otherwise indicated).

Material	Internal Conductivity	Authority
Celotex	0.33	Armour Institute
Sawdust	1.04	Bureau of Standards
Shavings	0.71	Bureau of Standards
Wood (Fir)	1.00	University of Illinois
Wood (Y. Pine)	1..00	Armour Institute
"Temprite" paper pulp	0.26	

To convert (British thermal units) to (gram calories, per sec., per sq. cm. for 1°C.), multiply by 0.000342.

From these tables the most efficient material for insulation is the "Temprite" paper pulp with the celotex being next in order. The celotex ⅝ inch thickness is equivalent to one inch of pine wood. Asbestos, as indicated in the first table, is about equivalent to one inch of wood in conductivity, or expressed as being an insulating material.

—o—

Answer by J. A. Munro, State Entomologist, North Dakota Agricultural College, Fargo, North Dakota.—Sheet asbestos is used mainly for its fireproof qualities. It has certain insulation value; however, there are other commercial forms of insulation materials on the market which should answer your purpose better than the material you have in mind. Some of the insulation board materials, including Celotex, Insulite, Nu-Wood, etc., because of their high insulating value, durability, and weatherproof qualities should be more desirable.

—o—

Answer by Prof. H. F. Wilson, College of Agriculture, Madison, Wisconsin.—I can see no advantage in the use of sheet asbestos, over other types of packing which are likely to be much cheaper, but this I do not know. I would have to see some of the material before making a decision.

I suspect that the asbestos would not be very desirable because all I have seen is more or less easily torn or broken, and probably could not be used for more than one season. The best material that I know of at the present time is a good grade of Sisal tar paper. A number of our beekeepers are using it, and with care it will last four or five years. Some of them are putting it on without other packing; others are using a thick layer of newspapers, folding the Sisal paper over at the top under the cover.

—ABJ—

Source of Frame Spacing Tacks

Where may I obtain the frame end spacing tacks described on page 403, August issue, 1936?

Answer by E. G. Carr, New Jersey.—These are known to the trade as ½" gilt finish No. 3 upholstery nails and are sold by North & Judd Manufacturing Company, New Britain, Connecticut.

—ABJ—

Danger of Snow Covering

What is your opinion of bees being covered with snow? Last winter it was below zero for nearly six weeks, starting the first of February with snow piled up to 15 feet deep, which stayed until spring. Some colonies were buried, some not. In the spring, the bees seemed to be dead on one side of the cluster. Evidently the queen was on the dead side, as the colony never showed any brood. The loss was 75 per cent.

Already we have the same amount of snow, only it snows and blows one day and is clear the next. One day snow, one day calm, all through January. The drifts are three to seven feet high and so hard farmers are driving over them with team and wagon, even cars.

I went out yesterday when it was 25 above and shoveled snow off from some buried colonies. The bees seemed to be too warm and they boiled out as soon as the light hit the top entrances. The snow is about six feet in parts of the apiary. It is like digging a well to each colony.

Do you suppose this heavy hard crust which seems to go to the ground is too hard to let air through? They cannot be dug out unless the weather is nearly thawing, as the sudden exposure seems to freeze the whole cluster. Would it be better to dig out colonies and build up until they are above the snow, or leave them buried until spring? The colonies are wrapped in tar paper with top entrances. SOUTH DAKOTA.

Answer. — Our own experience would recommend to leave the bees alone as long as the snow is covering them deeply. We have never had any loss through the bees being buried in the snow. The loss comes usually when the snow melts and then the ice freezes at the entrance so as to cut off all air.

The bees should not require much air and can get what they need through the snow. Usually the heat of the cluster will melt the snow for a space around the entrance. Probably the bees are warmer under the snow than they would be otherwise. The temperature was likely pretty close to normal when you dug in, and so the bees flew out.

It is difficult to advise one whose circumstances and location may be entirely unlike those from which the advice originates. Look out for trouble later when the snow melts and ice forms to close the entrances and keep the bees in the hive. Tar paper, top entrances and a snow covering sounds good to us. —ABJ—

What to Do for Paralysis

We have had three weeks of freak weather, warm, never closer to freezing than 5 above, and no sunshine. Usually the earth is blanketed in mist. When the sun appears, the bees fly freely.

In examining my bees this afternoon (January 14), I observed one colony apparently afflicted with paralysis. About a pint of bees were scattered about the entrance, either dead or dying, every one with swollen, greasy, black appearance typical of paralysis.

Examination showed the colony in good shape except for a few diseased bees scattered through it. Plenty of stores and bees, and brood rearing begun with one comb well filled with eggs and a dozen or so sealed cells. Can you tell me how to treat the paralysis?

I would like to save the colony, but I would prefer to destroy it rather than risk infecting others. What is the best way of killing it if that is necessary?

Answer.—There has never been any exact knowledge of the cause of paralysis nor any guaranteed cure for it. Some things help. Requeening often succeeds. Feeding the colony with syrup may help. When the honey-flow starts in the spring, there may be no manifestation of the difficulty.

Some think that bees located in a damp place is bad and that they should be kept in an elevation where they may get good air drainage. There is little likelihood that it will be transmitted to another colony. A failing queen may be an additional stimulant to the disease.

Dr. Burnside, at Washington, has found that the ground around colonies may become infected with organisms which possibly cause what we describe as paralysis. Frequently a colony moved away from its old place so that it is on fresh clean ground eventually brings about the disappearance of the trouble. Spading up the old spot to bury the organisms or dissipate them may make a space for use again by another colony at another time.

———ABJ———

Tartaric Acid

Last fall I used 200 pounds of sugar to six ounces of tartaric acid to feed twenty-five of my lightest colonies. Since then I have found that some recommend as little as one ounce of acid for 200 pounds of sugar.

Will the amount of acid I used harm my bees?

Answer.—You will not harm the bees if you have used an excess amount of the tartaric acid. The only reason for using a minimum quantity is to save the expense. We usually recommend a heaping tablespoonful to a hundred pound sack of sugar. I would judge with six ounces you probably used two or three times too much, but it will not harm the bees.

———ABJ———

Binding Your Journals

I would like to suggest that holes be formed in the journals to help in binding them in saving them from year to year.

Answer.—It would be impossible for us to make binding holes. We do have a binder with wires which run through the center of each issue of the journal, taking each copy separately. That is a better way. The binders sell at $1.25 postpaid.

———ABJ———

Foulbrood from Package Bees

1. Is there any danger of package bees carrying foulbrood if they are shipped with sugar syrup? TEXAS.

Answer.—1. There is little danger of bees carrying foulbrood when shipped with sugar syrup. The danger is even more remote when we realize that to ship package bees the southern breeders must have an inspection certificate from their state authorities. There should be no fear on this score.

Date of Package Arrival

2. When should packages arrive? Fruit trees start blooming about March 10, but the main honeyflow begins about April 25.

Answer.—2. Purchase package bees to arrive at the time of fruit bloom or slightly before. If you must get them by March 10, they will have to be purchased very far south if they are to come that early.

Packages on Comb or Foundation

3. Should I put packages on drawn combs or on foundation or mixed?

Answer.—3. It is better to put the bees on drawn combs or at least on three or four drawn combs and the balance foundation. Wherever possible, use all drawn comb.

St. Romain's "Honey Girl" Italians

Package Bees—Nuclei—Queens

Pkg. 2-lb. bees with select queen ..... $2.45 ea.
Pkg. 3-lb. bees with select queen ..... $3.15 ea.
Nu. 2-frame nuclei with select queen ..... $3.15 ea.

To get a large package or nuclei add .70 for each additional pound of bees.

Select Queens ..... $ .75 ea.
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Your order large or small will be appreciated and receive our best attention.

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Honey Girl Strain, for spring delivery, the best strain of Bees and Queens on market. They are honey gatherers and easy to handle.

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Let us quote on your 1937 needs.
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The method of raising us plus the advantage of an early and continuous flow make us large, uniform and very prolific. Real Queens of Quality.
Our bees are large, the best of honey producers and so gentle it is a real pleasure to handle them. Confidently we are a worth while investment.
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BOOKED TO CAPACITY
On packages up to May 10th. Let us reserve your shipping date on packages you will require May 15 or later. Daughters of imported queens. You will like them.
The Crowville Apiaries, Winnsboro, La.

Reuben J. Rhees Elected President Utah Association

Reuben J. Rhees, President, Utah.

VALUE of honey and wax produced during 1936 in Utah totals $225,718, it was revealed at the big two-day annual meeting of the Utah State Beekeepers' Association, held December 14 and 15 at the Newhouse Hotel, Salt Lake City, by Ray N. Miller, president, who presided. Estimated value of the extracted honey is $206,932; of the comb honey, $4,350, and the beeswax, $14,436, he pointed out.

Nearly 100 members from all parts of the state attended the annual convention.

Dr. W. H. Hendricks, of the state board of agriculture, and J. Fleming Wakefield, of Provo, chief deputy, submitted reports showing that through the state in 1936 there were 1,359 apiaries and 72,522 colonies inspected, with an average of sixty pounds of honey in each colony, for a total of 4,330,819 pounds.

Ray N. Miller, president, and Woodrow Miller, member, reported on their attendance at a recent beekeepers' convention in California.

R. H. Kelty, of Lansing, Michigan, president of the American Honey Institute, told the convention that the increasing industrial use of honey for flavoring purposes was bringing about an expansion of business for beekeepers. Per capita consumption of honey in the United States was estimated by Mr. Kelty as being one and three-quarters pounds.

Twenty years ago, Mr. Kelty said, honey production came largely from beekeepers who looked upon the occupation largely as a hobby, while today honey production is rapidly gaining the proportions of an important industry. He said that where production a few years ago was in small lots, now the product is shipped to market in carload lots. Utah's honey, he stated, was a fine product noted for its flavor and urged Utah producers to effect a better organization for their mutual benefit.

M. S. Stone, of the Superior Honey Company, Ogden, gave highlights of the national convention of beekeepers at San Antonio, Texas. Fleming J. Wakefield, deputy state bee inspector, gave his annual report.

Bee poisoning and insecticides were discussed by Dr. George F. Knowlton, associate entomologist of the Utah State Agricultural College, Logan, Utah. He said: "Beekeepers of this and other states have become very much concerned over the heavy losses of bees in certain areas immediately following application of dust and sprays for the control of tomato and fruit tree insect pests."

Mr. Kelty led in a discussion of bee problems the second day and Dr. J. E. Eckert presented a bulletin on the Davis, California bee laboratory. Mr. Wakefield read his annual report. Beekeeping phases and honey processing were discussed in addition to other subjects of the industry.

Officers Elected.

Reuben J. Rhees, of Pleasant View (near Ogden) was elected president of the association to succeed Mr. Miller, at the close of the convention. Mr. Rhees has an apiary of 2,000 hives in the heart of the orchard section of northern Utah. He is a veteran in the industry.

M. S. Stone, of Ogden, was named vice president; Leslie Walling, Salt Lake City, secretary-treasurer, and A. W. Anderson, Salt Lake City, and Arthur Pledger, Ogden, directors.

The convention adopted a resolution directing officials to strengthen the association.

To Seek Convention.

Mr. Rhees said: "We are out to get the 1937 convention in Ogden,

probably the last of December or maybe the month following when the big Ogden Livestock show attracts beemen and stockmen from all parts of the state to this city."

Glen Perrins,
Utah.

— o —

Centre County (Pennsylvania) Beekeepers Meet March 12.

The Centre County beekeepers will hold their spring meeting March 12, at 7:30 p.m., in the office of County Agent R. C. Blaney, which is in the post office building at Bellefonte. On April 5, Edwin J. Anderson, of the Pennsylvania State College, will hold an outdoor demonstration at the apiary of A. R. Houser, in Benner Township, on route 45, at 2 p.m.

A. R. Houser,
Secretary.

— o —

Bronx County Beekeepers' Association Host to Frank Pellett March 14.

The March meeting will be at McKinley Square Garden, 1258 Boston Road, at 169th St., Bronx, New York, March 14th, 2 p.m.

Our guest, Frank Pellett, Field Editor of the American Bee Journal and author of "American Honey Plants." Mr. Pellett is associated at present with Dr. Park, Research Associate Professor, of Iowa Agricultural College and State Apiarist F. B. Paddock at Ames, Iowa, in the investigation of disease resistance as related to American foulbrood in honeybees. They have made progress in this investigation, and we are hoping that Mr. Pellett gives us first hand information. Don't miss this chance to meet an internationally known beekeeper. We invite beekeepers from New Jersey, Long Island, Westchester and Brooklyn. All traveling beekeepers. For information, write the Secretary, John S. Ferguson, 150 W. 78th St., New York, N. Y.

Our February meeting was most outstanding. A. L. Axtell, "The Keeper of the Bees," Roseland, N. J., delivered his well known illustrated "Talks" on bees. Our host, Gus Flother, used us in the typical Flother manner and all were slow in breaking away from Gus's hospitality.

— o —

Rock County (Wis.) Beekeepers Meeting March 13.

There will be a meeting of the Rock County Beekeepers' Association Saturday, March 13, at 1:30 at the City Hall, Janesville, Wisconsin. The chief apiary inspector and other speakers will be present. A good program has been arranged and all beekeepers are invited.

S. J. Riesterer, Sec.

— o —

Michigan District Meetings for March

10:00 a.m. March 24, Northern Ohio, Southeastern Michigan spring meeting, Court House, Adrian.

10:00 a.m. March 25, Western Michigan District Annual Meeting, A. G. Woodman's Warehouse, Grand Rapids.

10:00 a.m. March 26, Northeastern Michigan meeting, Court House, Saginaw.

Speakers: M. J. Deyell, Editor, Gleanings in Bee Culture, Medina, O.; Chas. Reese, State Apiarist, Columbus, O.; Jay Cowling, O. H. Schmidt, Floyd Markham, Colon C. Lillie, D. P. Barrett, M. N. Dillon, and others.

Motion pictures of honey bees will be shown.

— o —

Beemaster's Program Over CKTB.

Beginning February 17, over station CKTB (wave length, 249.9 meters, 1200 Kc.), C. E. Phillips, as "The Beemaster," will talk on Wednesday and Friday of each week from St. Catharines, Ontario, at 6:45 p.m. The plan is actually to have bees do some humming before the microphone, and the purpose of the talks

(Just turn the page, please!)

—ABJ—

All Around the Bee Yard

(Continued from page 135)

This calls to mind the work of Dr. Haydak at the University of Minnesota, who has found that a mixture of three parts soybean meal and one part milk, with twenty parts of honey, makes an excellent pollen substitute for early spring when bees do not have pollen available, or do not have sufficient pollen reserves carried through winter.

The use of honey might be dangerous because of the chance of spreading disease. Perhaps the dry substitutes could be fed satisfactorily without it. We have asked Dr. Haydak if he will give us more information about his experiments.

— o —

Experiments at the Government Field Station, Laramie, Wyoming, and at Davis, California indicate that a pollen reserve through winter is absolutely necessary to bring about late winter brood rearing and the replacement of the worn out winter population with young bees ready to begin rapid colony increase in the spring. A figure of 650 square inches of pollen reserve in the fall is indicated as a measure for the determination of whether or not the colony has sufficient pollen. It is an interesting piece of research. After talking with Mr. Todd of the Davis Field Station, we examined colonies in a flight spell in December and found them with less pollen than that indicated by the figure. We would suppose that all bees in this fall flower bedecked valley country would enter winter with an abundance of pollen. Do they?

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Young bees. Full weight guaranteed.
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Good weight, young bees, prompt service. Try me this year and I will fill your order so you will come back again next year.
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3-Pounds $3.15
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Ship from Tempe or Phoenix
Southern Pacific or Santa Fe
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Select Untested Queens	$ .75 each	$ .50 each
2-Pound Package with Queen	2.45 each	1.95 each
3-Pound Package with Queen	3.15 each	2.55 each
Each Additional Pound of Bees	.70 each	.60 each

For Queenless Packages take away price of Queens.
15% discount to dealers.

BANTA & WIRE, Los Molinos, Calif.

Rosedale Steam Uncapping Plane

High-heat copper blade; light weight; works faster; less tiring; attaches to ordinary steam-knife boiler; reduces extracting costs.

"This year we uncapped 100 tons of honey with the Plane. It is the best tool on the market for the work. We uncap more honey than with the steam or power knife and much easier.

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MENTION AMERICAN BEE JOURNAL WHEN WRITING ADVERTISERS

will be to increase public information about honey and its uses.

More beekeepers should make an effort to do this kind of work. Mr. Phillips even has a theme song, "I Am the Bee" with five verses, which we will publish when we find room for it. Listen in over CKTB, as above.

— o —

County Meetings for March in Indiana.

Date—County	City	Time
4—Clinton;	Frankfort	1:30 p.m.
5—Boone;	Lebanon	1:30 p.m.
6—Hendricks;	Danville	1:30 p.m.
8—Henry;	New Castle	1:30 p.m.
9—Randolph;	Winchester	1:30 p.m.
10—Wayne and Union;	Richmond	1:30 p.m.
11—Fayette;	Connersville	1:30 p.m.
12—Franklin;	Brookville	1:30 p.m.
13—Rush;	Rushville	1:30 p.m.
15—Shelby;	Shelbyville	1:30 p.m.
16—Decatur;	Greensburg	1:30 p.m.
17—Bartholomew;	Columbus	1:30 p.m.
18—Jennings;	North Vernon	1:30 p.m.
19—Dearborn and Ohio;	Aurora	1:30 p.m.
20—Ripley;	Osgood	1:30 p.m.
22—Jackson;	Brownstown	1:30 p.m.
23—Scott;	Scottsburg	10:00 a.m.
23—Scott;	Scottsburg	and 1:30 p.m.
24—Clark and Floyd;	New Albany	1:30 p.m.
25—Harrison;	Corydon	1:30 p.m.
26—Orange;	Paoli	10:00 a.m.
26—Orange;	Orleans	1:30 p.m.
27—Monroe;	Bloomington	1:30 p.m.
29—Morgan;	Martinsville	1:30 p.m.

— o —

Our Cover Pictures—A Contest for Everybody.

The picture on the front this month, as we announced on page 68 February, is from Iver C. Anderson, Lake Benton, Minnesota. We would prefer a more human interest picture, but this is the best of those received previous to publication.

Picture for April.

From our cover artist, Miss Louise Conradt. She couldn't keep out of the contest, and she won. I am sure she won't care for the book, but then we pay her anyway, so what's the difference It is the best of the pictures submitted and there was no way to shut the door against our long standing faithful friend, so her winning contribution is for the April cover. Look for it.

Room does not permit a picture by picture comment this month. There were about thirty pictures from different subscribers, some of them very fine. We have adopted the plan now of letting the judges decide each month between all the pictures retained for consideration, so that some who submit pictures for our cover may have their pictures considered a number of times. In the end, many will be returned. Some not suitable for cover purposes will be kept for our pages with the same offer as for those who succeed with pictures for the cover.

Prizes.

For pictures selected, for either cover or inside page use, we will give one copy of either of these three books, autographed by the author: "American Honey Plants," by Frank C. Pellett; "Huber's Observations on Bees" or "The Honeybee," by C. P. Dadant; with a picture of the author for your own den wall.

National Honey Week
April 19 - 24.

Replacing the old National Honey Week held in the fall, this year the new spring celebration should be a welcome change and carry us on to new achievements in local honey demonstration, advertising, and sales promotion efforts. This is our greatest time of all, a national accepted occasion, thanks to the efforts of American Honey Institute to give honey a place among food products and create about it an atmosphere welcome to the public.

Perhaps producers may not take kindly to the date since they have no honey on hand, but remember there are still millions of pounds of honey ready for market. Honey packers in particular, carrying a reserve of honey as they do, should arrange programs for this first Spring Honey Week. Producers should cooperate with them. With a Spring Honey Week and a Harvest Festival in the fall, each year, honey may readily be taken out of the seasonal class.

One of these years there will be a bumper crop; and a concentrated effort in spring and fall on the part of the producers and packers will help to create a market to absorb it when it comes, and naturally benefit the entire industry.

National Honey Week programs will be mailed to those who wish by writing to American Honey Institute, Madison, Wisconsin. Three special broadcasts, two newspaper stories and various outlines are available. The Institute will send announcements to the allied trades and to educational organizations also on request. So it's up to you, beekeepers, to get busy.

We have the following broadcasts available: "My Honey Week Menu," 5 typewritten pages requiring 10 to 15 minutes, 10 cents; "The Spring Hostess Uses Honey," 6 typewritten pages requiring 15 minutes, 10 cents; "The Honey Way to Better Foods," 5 typewritten pages requiring 10 to 15 minutes, 10 cents; Newspaper Stories — "Honey Ideas for Spring Parties," 2 typewritten pages, 5 cents; "A Romantic Food," 2 pages, 5 cents; "The Versatile Sweet," 2 pages, 5 cents.

Remember the dates, April 19 to 24. Get busy.

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Officers Elected in Idaho.

The Southwestern Idaho Honey Producers' Association elected C. F. Feller, of Nampa, Idaho, president, January 19. C. A. Williams, of Meridian, was named vice president and K. M. Hattabaugh, of Boise, secretary-treasurer. The meeting was an executive session.

Glen Perrins,
Utah.

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"Exceline Jars"... range in size from ½ pound to 4 pounds.

"Tall Cylinder Jars"... range in size from 1¼ oz. (individual service) to 3 pounds.

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Hazel-Atlas offers a wide list of containers for the honey packer — the Tall Cylinder, the Skyline, the Beehive — and now the new Exceline Jars. All easily packed and labeled. Write for free samples.

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We are also on a main trunk line into St. Louis and have unsurpassed shipping facilities. We can deliver bees to you in less hours than most other shippers. Try us. We guarantee satisfaction.
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All queens mated from strong 3-frame standard size nuclei hives. This avoids chilled cells in early queen rearing. All queens in our packages guaranteed reared as above. Young laying 1937 queens.

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3-Pound Package with Select Queen	3.15
4-Pound Package with Select Queen	4.00
5-Pound Package with Select Queen	4.75
4 Pounds Bees on 1 comb brood and honey with Select Queen suitable for orchard pollination by removing cork from end of cage, price each	4.00
2-Frame Nuclei. 2 pounds bees with Select Queen. Laying on combs in transit, each	2.85
Young Select Laying Queens, each	.75

Twenty years' experience. Shipped as promised in most modern cages. No deposit. Trade packages for wax and foundation. Packages shipped by fast express. Your address on postal brings descriptive circular. Also snap shot of our large queen yard.

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Three-Band Italian
Bees & Queens
Write for prices.
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Queens	.75

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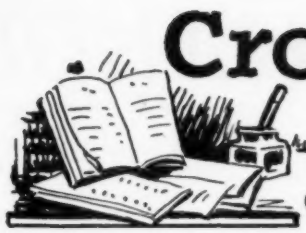

Crop and Market Report

COMPILED BY M.G.DADANT

For our March report, we asked correspondents to answer the following questions:

1. How much honey left on hand?
2. Will it move by May 1?
3. How do bees seem to be coming through winter?
4. Honey plant prospects.

How Much Honey Left?

Honey is cleaning up very readily throughout the entire country. This is particularly true in the eastern states and in the whole country south of the Ohio River.

We learn of a little more honey left in the central west, this ranging from 5 to 10 per cent of the total crop in some instances.

The plains region is more generally cleared of honey as are the northern intermountain states with just a little sprinkling of carloads left in Colorado and Utah.

The extreme north Pacific states are well cleared of honey. California has all along reported considerable honey left on hand but with the conclusion of the maritime strike, this honey is now moving out satisfactorily.

The eastern provinces of Canada are also reporting honey fairly well cleared up with perhaps Manitoba showing more honey on hand comparatively than any of the other provinces. Saskatchewan, Alberta and British Columbia appear to have only moderate supplies.

Will Honey Move?

With practically only two exceptions, it seems that all of the honey will move before May 1 and in fact before any of the new crop is available for sale.

A reporter in Pennsylvania thought that the old crop would not all move ahead of the new one coming in.

A North Dakota reporter stated that considerable honey was being held for high prices which he anticipated would not move unless a sacrifice was made over a price of 8 cents or more asked.

In Manitoba it is also a little doubtful whether all honey will move to market before the new crop is available.

Condition of Bees.

Throughout the northeastern states particularly and all over the South, bees are in excellent condition.

However, as we work south along the Atlantic coast, we find that the weather has been extremely warm for the season of the year and some doubt being expressed as to whether the bees will have sufficient stores to last them and whether or not they will not be set back severely should a cold spell arrive.

This same condition exists clear down to upper Florida and across the southern states to the Mississippi River and into Louisiana.

All reporters state that the weather is too warm, bees are breeding heavily ahead of time, and are using up their stores extremely rapidly with a possibility of starvation should the weather retard them or should the beekeeper not be forearmed and keep them plentifully supplied.

However, such bees as were not cellar wintered in the extreme northern states and extending into Canada, have been confronted with a very prolonged severe spell of weather and a doubt in the minds of many of the beekeepers as to whether or not they would come through in satisfactory fashion owing to the fact that the long, cold spell was preceded by warm weather which perhaps induced the bees to breed up to some extent. These conditions exist as far west as into the intermountain territory.

Along the west coast, bees have been retarded considerably by the severe cold spell of weather which not only went to southern California but across the mountains and also had its effects in Arizona, Nevada, Utah and neighboring states.

All in all, however, we believe that the bees are in better condition to come through the winter than they were a year ago. In other words, the losses should be less than they were a year ago unless the unforeseen happens. On the other hand, undoubtedly there is going to be much more feeding necessary on account of the open winter in many sections and the consequent raising of brood and using up of honey stored.

Honey Plant Conditions.

In the New England States, honey plant conditions are only from poor to fair owing to a very open winter and lack of snow to cover the honey plants.

Conditions down the Atlantic coast and throughout the entire South are very satisfactory. However, honey plants are extremely advanced and many plants are blooming a month ahead of time in all of the southern states as far as Texas. Texas seems to have gotten a peculiar combination of moderate weather and yet cooled off by the extreme western coast storms so that honey plants are about in average condition, not too much advanced as they are throughout the balance of the South.

Extending from Ohio eastward and covering the entire dry belt, we find very grave question in the minds of beekeepers as to whether or not honey plants will be sufficiently numerous to warrant a crop this year. The dry weather was not broken early enough in the fall to give the sweet clover plants the start they needed and white clover plants, of course, have been almost completely wiped out during the 1936 season owing to the severe drought. The sleet storm and ice covered fields also may have damaged honey flora.

However, sweet clover comes back remarkably and undoubtedly in many sections we will find the beekeepers happily surprised at the number of sweet clover plants.

In the extreme northern states, Michigan, Wisconsin and Minnesota, a little doubt is expressed on account of the open winter but no doubt honey plant conditions will be near normal. As we get into western Minnesota and into the Dakotas, heavy snows have fallen with the result that honey plant conditions should be extremely satisfactory and this goes for Montana, Idaho and down into Wyoming and Utah. Snowfalls in most instances have been very satisfactory and assure for the irrigated sections plenty of water for the coming season.

The northern Pacific states are in a satisfactory condition for honey plants and California is far above last year on account of the excessive snows and rain. Orange will undoubtedly be hurt considerably by the heavy freeze, particularly in the central sections with possibly a minimum of loss in the extreme South. Arizona also reports the effect of the very cold weather in reduced prospects for a good crop.

All in all, we doubt whether honey plant conditions are as good this year as they were last year on the same date but with the possibilities of their improving very much more as the season progresses. Our readers will remember that the entire Central West or white clover section had extremely desirable possibilities ahead of the season last year which failed miserably as the dry weather developed and cut off almost all of the white clover crop.

This year perhaps with very little or no prospects, the beekeepers may again be surprised at the amount of honey which can develop under favorable conditions.

We must, however, look to the sweet clover sections this year for the heavy producing and to California.

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Rates of advertising in this classified department are seven cents per word, including name and address. Minimum ad, ten words.

As a measure of precaution to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisers offering used equipment or bees on combs must guarantee them free from disease, or state exact condition, or furnish certificate of inspection from authorized inspector. Conditions should be stated to insure that buyer is fully informed.

BEES AND QUEENS

CAUCASIAN PACKAGE BEES. Booking orders now for 1937 delivery. 2-pound package with queen $2.45; 3-pound package with queen $3.15. 15% discount to dealers.
P. B. Skinner Bee Co., Greenville, Ala.

PACKAGE BEES WITH QUEEN INTRODUCED eliminates loss of queens. Our folder tells about them. A. O. Smith, Mount Vernon, Indiana.

PACKAGE BEES, with or without queens. Sternenberg Bros. Lockhart, Texas.

CAUCASIAN BEES AND QUEENS. Booking orders now for May and later delivery. Our prices same as last year. Write for descriptive booklet and prices. Order early and get bees. Bolling Bee Co., Bolling, Alabama.

PACKAGE BEES AND QUEENS. Dependable stock. Quick delivery. Low express rates from Nashville. Nineteen thirty-six prices. N. S. Gladish, No. 5 Hobbs Rd., Nashville, Tenn.

ITALIAN QUEENS, PACKAGES — Trade Agreement prices.
S. J. Head, Winnfield, Louisiana.

ITALIAN QUEENS, PACKAGE BEES.
Alonzo McKay, Route 1, Vicksburg, Miss.

PACKAGE BEES AND QUEENS: Three-band Italian, ready April 1st. Larger capacity, better service. Express or parcel post shipment. Safe delivery guaranteed. 2-lb. package shipped to Michigan last season averaged more than 5 supers each; similar results elsewhere. 1-lb. package and queen $1.75; 2-lb. $2.45; 3-lb. $3.15; 4-lb. $3.85; 5-lb. $4.55. F.O.B. Untested queens 75c each. Bees on comb, write us.
Crenshaw County Apiaries, Rutledge, Ala.

THREE-BAND ITALIAN BEES & QUEENS. Guaranteed to be the best that can be produced. Ready to ship about March 15th. I can handle your early orders. Trade Agreement prices. D. P. Green, Deland, Florida.

"SHE-SUITS-ME" QUEENS. None better. Only choice selected queens sent out. Line-bred, three-banded stock. Prices after May 20, one queen $1; six for $5. Special prices on large quantities. Send for circular.
Allen Latham, Norwichtown, Connecticut

ITALIAN BEES, QUEENS, PACKAGES, Nuclei. Take wax, honey as payment. Experienced man wanted. Homer W. Richard, 1411 Champnolle, El Dorado, Arkansas.

PACKAGES BEES, headed by a Caucasian queen $2.45, $3.15.
Miller's Caucasians, Three Rivers, Texas.

THREE-BANDED ITALIAN BEES AND Queens of fine quality. A trial order will convince you. Satisfaction guaranteed. Marketing Agreement prices. Alamance Bee Company, Geo. Elmo Curtis, Mgr., Graham, N. C.

LIGHT 3-BANDED ITALIAN QUEENS. We are one of the largest growers of queens in the United States, producing 100 queens or more daily. We ship only young, laying queens and guarantee them to be purely mated and satisfactory to you. You are the judge. Price, 75c each. To dealers, 63¾c each. We need dealers in many localities.
The Walter T. Kelley Co., Paducah, Ky.

OUR NUCLEI DELIVERED TO TRUCKS at our apiaries are superior. How? Let us tell you how.
Elevation Apiaries, Milano, Texas.

SPECIAL OFFER on 300 one-story colonies of bees in modern ten-frame standard equipment at $3.50 each. Truck them yourself. We can make early shipments on two and three-pound packages of bees with queens. Ship at any time you say—March, April, May and June. Trade Agreement prices. Dealers' discount 15%. Dealers wanted in all localities. Health certificate with all bees.
Little River Apiaries, Box, 83, Gause, Texas.

TRY TILLERY'S CAUCASIANS, package bees and queens. 2-lb. package $2.45. Untested queens 75c each. Safe arrival, satisfaction.
Tillery Brothers, Greenville, Ala., Route 4.

HONEY FOR SALE

FOR SALE—Northern white extracted and comb honey.
M. W. Cousineau, Moorhead, Minn.

CHOICE Michigan Clover Honey. New 60's.
David Running, Filion, Michigan.

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Company, 230 Park Avenue, New York.

FOR SALE—Well ripened clover honey, car lot or local shipments. Will be pleased to submit sample. THE COLORADO HONEY PRODUCERS' ASSN., 1324 Market St., Denver, Colorado.

FOR SALE—New Comb and Extracted Honey. H. G. Quirin, Bellevue, Ohio.

HONEY FOR SALE—All kinds, any quantity. H. & S. Honey & Wax Company, Inc., 265-267 Greenwich Street, New York.

WHITE CLOVER HONEY in 60-lb. cans at 8c lb. Write for prices on large quantities. Sample 15c.
F. W. Summerfield, Grand Rapids, Ohio.

FOR SALE — Fancy, well ripened, white sweet clover honey in 60-lb. cans. Extra good quality. Dadant & Sons, Hamilton, Ill.

EXTRA QUALITY WHITE SWEET Clover Honey, packed as you desire. Joe C. Weaver & Sons, Rt. No. 3, Springfield, Mo.

DELICIOUS WHITE CLOVER in 5's, 10's and 60's. Sample free. Henry Stewart, Prophetstown, Ill.

DELICIOUS PALMETTO HONEY in new sixties. Peter W. Sowinski, Fort Pierce, Florida.

LIGHT AMBER in new 60's.
E. S. Miller, Valparaiso, Indiana.

HOWDY'S HONEY: About three tons of light amber extracted still on hand. Also some capping-melter.
Howard Potter, Ithaca, Michigan.

MICHIGAN White Clover Honey. New sixties, O. W. Dilley, Grand Ledge, Michigan.

CLOVER COMB standard beeway sections.
C. Holm, Genoa, Illinois.

FOR SALE—Light amber clover honey in 60-lb. cans. Roy Littlefield, Exira, Iowa.

WHITE CLOVER HONEY. Best offer.
Oakdale Apiaries, Rush City, Minnesota.

HONEY AND BEESWAX WANTED

WAX worked into comb foundation, accepted in trade for supplies or bought. Write for our proposition and shipping tags.
Walter T. Kelley Co., Paducah, Kentucky.

WANTED—Car lots honey; also beeswax, any quantity. Mail samples, state quantity and price. Bryant & Cookinham, Inc., Los Angeles, Calif.

WANTED—Extracted Honey. Send sample and price delivered to T. W. Burleson & Son, Waxahachie, Texas.

WANTED—White and Light Amber Honey. Carlots or less. Clover Blossom Honey Co., 712 Kossuth St., Columbus, Ohio.

HONEY PACKERS—Write us for prices on carload lots of California and Western Honeys. We stock all varieties. HAMILTON & COMPANY, 108 West Sixth St., Los Angeles, California.

WANTED—White and Amber Extracted Honey, any quantity; also beeswax. Write THE FRED W. MUTH CO., Pearl and Walnut Sts., Cincinnati, Ohio.

WANTED—All dark grades of honey. C. Jankowski, Russell, Ill.

ALL GRADES, including capping melter honey, Prairie View Apiaries, 2005 Fullerton, Detroit, Michigan.

FOR SALE

EIGHT FRAME EQUIPMENT for 50 colonies, good as new. Cheap. Mrs. W. S. Phillips, 407 Magowan Ave., Iowa City, Iowa.

SUPPLIES FOR ONE HUNDRED COLONIES. APIARY DESTROYED BY FLOOD. MUST SELL EQUIPMENT. NO DISEASE. A BARGAIN FOR CASH.
Wholesale Supply Co., Rockport, Indiana.

FOR SALE—Five hundred stand apiary in central Iowa, including honey house if desired; also residence and 1½ ton truck.
Box F.L., American Bee Journal.

SUPERS FOR 4x5 SECTIONS, fine condition, Root. Guaranteed no disease. 10-frame size. E. S. Miller, Valparaiso, Indiana.

FOR SALE—Two Root 45-frame Simplicity Extractors. These machines have been in operation for two seasons and in excellent condition. Price $65.00 each, crated, f.o.b. Wendell, Idaho. R. D. Bradshaw & Sons.

PROFITABLE, WELL ESTABLISHED mail order honey business, doing a national business. Located in northwestern Ohio. Bee equipment, completely equipped printshop, list of 5000 names. Yearly net income $2500. Minimum capital required $5000. Cash. Please do not write unless you have the money and mean business.
Box C.J.A., care American Bee Journal.

WANTED

EXPERIENCED BEE MAN wants work preferably clover and alfalfa districts. Reliable references. John Osgood, Rt. No. 3, Box 577, Grants Pass, Oregon.

TWO EXPERIENCED HELPERS first May, 7 months, no board. Working 2000 colonies Harlan, Iowa. State qualifications and wages expected.
Old Taylor Honey Co., Chandler, Oklahoma.

BEEKEEPER, aged 39, wishes to secure housekeeper with interest in bees.
Box 924, Care American Bee Journal.

WANTED EXPERIENCED BEEKEEPER TO MANAGE APIARY OF 1000 COLONIES IN MICHIGAN. STATE WAGES WANTED, ALSO EXPERIENCE. HAVE GOOD PROPOSITION FOR A CLEAN—CUT YOUNG MAN THAT IS NOT AFRAID OF WORK AND WANTS TO GET AHEAD. REFERENCES REQUIRED. ADDRESS AMERICAN BEE JOURNAL, BOX NO. G.P.C.

WILL PAY CASH for about 300 colonies of bees and equipment in Wyoming, Montana or Idaho. Write full particulars.
R.L.P., 311 Park St., Ft. Collins, Colorado.

FOR EXCHANGE

WANTED TO TRADE—Automatic rifle for typewriter; honey extractor and tank for pool table. H. N. Boley, Hillsboro, Iowa.

WALTER T. KELLEY

HIGH and DRY

I know that you have been seeing pictures in your newspapers of Paducah flooded several feet deep by the Ohio River and read accounts of all of its inhabitants being moved out to higher ground. I will admit that all of this is true and I wish to thank all of my friends who have written letters of sympathy and offers of assistance.

BUT surprising as it may seem my factory has been high and dry all of the time. After seeing the 1927 Mississippi River flood approach me within a mile at Houma, Louisiana, where I was at that time, I decided to locate on very high ground when I moved to Paducah three years ago. I inquired about the 1913 flood and finally located three miles beyond the city limits and I am highly pleased to advise you that I was fifty feet higher and three miles away from the nearest flood waters of this greatest of all Ohio River floods.

I have been operating my factory continuously during this flood but mail service and movement of freight have been so delayed that customers having orders placed with me will find it hard to believe. But remember that the great ILLINOIS CENTRAL RAILROAD operating between Chicago and New Orleans, which incidentally serves Paducah, did not move any freight across the Ohio River for well over three weeks. Neither did the U. S. Post Office deliver us any mail for over two weeks, with only partial delivery for about four weeks and you will understand what a fix we have been in the way of giving you service.

Now that all of this is over, with the flood waters passed down the river, and things back to normal we are again prepared to give you our usual fast service. All of our catalogues have been mailed and if you do not have your copy write for it now, as it is completely new with new improvements at prices you can afford to pay.

QUALITY AT LOW PRICE.

The WALTER T. KELLEY CO. :: PADUCAH, KY.

Manufacturers of BEEKEEPERS' SUPPLIES

Louisiana Comb Shippers and Honey Producers Association

An Independent Beekeeper's Organization — Neither Controlled or Affiliated With Any So-Called National or State Organization.

Organized by Package Bee Shippers for a Better Understanding With Package Buyers.

Package bees on natural combs of honey and brood, queen loose and laying among them, ship better, handle better, transfer better, get off to a better start and put up more honey than any other way in which bees can be handled.

It eliminates all the trouble in installing bees into hives, as combs have to be only lifted over with bees, queen and all.

The flight hole in the package can be loosened, bees let fly and then settle down before transferring. It is an ideal orchard package; the extra honey it carries takes care of variation in bloom period.

It removes all danger in queen introduction, queens are introduced without cost to you before shipping and live arrival guaranteed. We cage queens on special request only.

This section of Louisiana is ideal for comb building, with its heavy drawn out honeyflows and its mild climate. Every member of this Association is a honey producer.

We breed the best stock of three-banded Italian bees and every member of this Association is a queen breeder.

Buy the 2-lb. package, queen already introduced, on one standard comb, $2.45 each.

We also specialize on combless packages, and we sell them at the same price.

Supply of Modified Dadant combs limited and only for later shipments. 2-lb. package, queen already introduced, one Modified Dadant comb, $2.75 each.

All Modified Dadant combs built on Dadant's crimp-wired foundation.

Extra pounds of bees 70c, extra combs 70c which can be bought to build up size packages desired by buyers. Approved dealers write for discounts.

One-fifth books the order.

All shipments with Inspection Certificates attached: satisfaction guaranteed.

Thousands of colonies to draw from.

No representative has authority to speak for this Association at any place or meeting, on any subject, without first showing credentials signed by the Executive Committee of this organization.

The above package is a Straight Comb Package. We have nothing whatever to do with any "Nuclei Comb Packages," and of course are not paying Nuclei Comb Package Trade Agreement Dues on our straight up-to-date comb package.

Packages obtainable from the following alphabetically listed shippers, at addresses below:

R. L. BERNELL, Route 4, New Orleans, Louisiana.

E. J. BORDELON, 2651 Havana St., New Orleans, La.

J. P. CORONA, Kenner, Louisiana.

JES DALTON, Kenner, Louisiana.

EPHARDT'S HONEY FARMS, Luling, Louisiana.

J. L. GASPARD, Hessmer, Louisiana.

NORMA E. ROY, Hessmer, Louisiana.

B. L. WAHDEN, 1201 French St., New Orleans, Louisiana.

The Postscript

GOSSIP ABOUT THE OFFICE IN THE MAKING OF THE MAGAZINE

An occasional report of the blue flowered sweet clover still continues to come in. While the plant has been disappointing in most cases, enough of success has been reported to justify further trial. It is possible that a lack of proper bacteria may account for most of the failure as was the case with so many early efforts to establish alfalfa.

C. Henry Swayer, of Mexico, Indiana, reports that the plant grew well with him and that he secured ten times as much seed as he sowed. Although the bees failed to notice it he will try it again.

—ABJ—

In answer to our question in the January Postscript as to the effect of a rattlesnake bite on one immune to bee sting poison, Mrs. E. O. Rauchfuss, of Powell, Wyoming, tells of an incident of about twenty years ago when Frank Rauchfuss was bitten. He thought at first that he had been stung on the leg but after killing a rattlesnake he investigated and found two marks of the fangs. While the limb was swollen and painful for a few days no serious consequences resulted.

—ABJ—

O. B. Server, writing in Beekeepers Item, comments on my question as to the effect of a rattler's bite on a beekeeper by saying that he has known many such cases. He fails to answer my question as to whether the immunity to bee sting poison apparently made them less susceptible to the poison of the snake. Please tell us O. B. S.

—ABJ—

O. G. Borton comments on our recent reference to Russian basswood and states that at Scotland, South Dakota, basswood trees have survived recent years of drought in groves where ash, box elder, maple, elm and even cottonwood have died. He refers to the honey which he sampled when in Russia in 1907 as "almost as white as water, with wonderful flavor." His first acquaintance was in one of the finest restaurants in Moscow. From this experience he is anxious to learn more about basswood as known to Russian beekeepers of the present day.

—ABJ—

When visiting south Texas, I was much interested in a very common wild flower which is locally known as "crow poison." The clusters of white flowers appear in spring at the tip of a slender round stemmed stalk. The scientific name of the plant is **Nothoscordum bivalve.** It grows from a small onion like bulb and is sometimes called false garlic. Although the plant resembles an onion it lacks the peculiar onion odor.

—ABJ—

This little flower is brought to mind by the favor of its near relative **Nothoscordum fragrans** which is being recommended in the garden publications under the pleasing name of "Honey Bells." Any plant which merits such a name should of course be of interest to every beekeeper. To grow it in the North it will probably be necessary to dig the bulbs in autumn and store them as we do the gladiolus. In the southeastern states it will do very well without attention and is already naturalized in some neighborhoods.

—ABJ—

A quotation from Nature Magazine says "Honey made from the lowly skunk cabbage blossom is not impaired by the odor of the plant."

I wonder how they know. Has anyone ever seen enough honey from skunk cabbage to be able to tell?

—ABJ—

H. E. Weisner, who lives at Tucson, Arizona, widely heralded as the winter playground, tells us that the region's reputation is seriously compromised by two snowstorms in one winter with possibilities of more to come. On January 7 five inches fell, the heaviest snowfall in many years.

Likewise California departed from its usual mild winter and gave its visitors frost and cold instead of the usual balmy sunshine.

With the unprecedented floods in the Ohio Valley the winter has brought so much of discomfort and distress that few will regret its departure.

—ABJ—

A reader asks where he can get seed of the yellow flowered alfalfa. I do not know of any seed company which offers this variety. It was introduced by Dr. N. E. Hansen, of the South Dakota Experiment Station at Brookings. Doctor Hansen regards it as one of the most valuable for bees. A letter to him might ascertain where it can be had.

—ABJ—

Edmond Fontaine, of Ruxton, Maryland, likes Caucasian bees except for the fact that the queens are hard to find. I have had the same difficulty but find that a spot of bright colored enamel on her back helps wonderfully when you are looking for lady queen. As far as I can see it does no harm. In the experimental apiary we have marked queens which are four years old and apparently as good as ever.

—ABJ—

Letters of inquiry continue to come to me regarding Vitex as a honey plant. This shrub or small tree is one of the most attractive to the bees that I have ever seen. Be sure, however, to get the **Vitex Incisa negundo** as there is another kind which is of little value for honey. This Vitex is especially valuable for the region from Missouri and Kansas southward. It will stand much dry weather but is sensitive to extreme cold. Some planted at my Iowa farm about twenty years ago killed to the ground nearly every winter but for many years came up again the following spring much like the butterfly bush often does. The flowering time is long and the blossoms are always covered with bees.

Two year old trees are listed at forty cents each in the catalog of Vaughan's Seed Store, Chicago.

—ABJ—

Jay Smith gets me all excited when he writes about the lizards running across the floor and the skunks coming into the kitchen in his home in Florida. Reminds me of the time when my brother caught a skunk by the tail and routed out the family when he brought it into the house many years ago.

When Jay tells of ripe tomatoes, new potatoes and cauliflower in January it tends to make one a bit dissatisfied with the snow and ice of our Illinois winter. After visiting California, Texas and Florida, however, one discovers that all is not sunshine and flowers. The good things are not all in one spot and things are not so unequally distributed after all. The other attractions of our north country compensate for the snow and ice.

—ABJ—

M. G. Dadant's account of the San Antonio convention reminds me of the way Eugene Secor described the Chicago convention in 1887:

At Chicago they met, a right jolly set,
On a soft balmy day in November,
Such a buzz and roar I heard once before—
At an old cider mill in September.

They talked about bees—their legs and their knees,
Of the God-given nectar in flowers,
Of its value as food, of bare-headed brood,
And the late sad failure of showers.

—ABJ—

It is my plan to spend the month of March with my son Fred who lives on Route 7, Pashley Road, Schenectady, New York. March is a poor time to meet eastern beekeepers but work at the experimental apiary will require my attention at more pleasant seasons.

FRANK C. PELLETT.